THE FOUNDRY

VOL. 6. DETROIT, MICH., DECEMBER 1894. No. 28.

THEIR ANNUAL.

The Eastern Foundrymen's Association Meet—They Elect Officers and have a Banquet.

Socially speaking, the Philadelphia Foundrymen's Association is all its members could wish. Their monthly meetings at the Manufacturers' Club have accomplished wonders in bringing together and making better acquainted the foundrymen, not alone of Philadelphia, but from a wide extent of territory, as it contains many members in every Eastern State. This social feature, which has been so thoroughly developed and never lost sight of, has been a most important factor in maintaining the attendance in the Association during its earlier days.

Manufacturers' Club, Philadelphia, where Eastern Foundrymen's Association meet.

There is an atmosphere of good-feeling and

good-fellowship prevalent at these gatherings that seems always to create a feeling of satisfaction and comfort in the minds of those present, and he who is fortunate enough to attend any of their social sessions is certain to wish for the opportunity to do so again.

It must not be thought from the foregoing that the more serious or practical issues are in any overlooked, as all who know the facts can cheerfully testify to the contrary; but it has been found that the reading or discussing of lengthy papers on abstruse questions was a matter of small importance compared with the necessity of making all present feel at home, providing pleasant surroundings for the interchange of opinions and news items among men whose interests were so similar.

A man feels more at liberty to express himself upon any subject when he feels that he knows all present, and that they are more or less in sympathy with him.

A particular effort is made to have visitors generally introduced to all present, and the practical man who would fail to find a number of congenial spirits at the gathering would be hard to suit. The third annual meeting of this Association was held Wednesday evening, November 7, and while the attendance was not perhaps as large as it might have been, had not there been a general election the day previous with its attendant celebration, yet there was a good attendance of representative men, many of them coming from a distance.

The chair was occupied by the President, Francis Schumann, of the Tacony Iron & Metal Co., Tacony, Pa.

THE EXECUTIVE COMMITTEE

reported that at their last meeting the impression was formed that while there might be some improvement in business in different parts of the country, it was not general. Prices, while low in the extreme, did not seem to have reached bottom. Discussion had evolved the fact that immigration had decreased very materially in recent months and wages had been lowered in a number of shops. This association as an organization had deemed it advisable not to interefere with wages or prices of castings. In regard to Association affairs the committee wished to improve the social element of the Association and have the foundrymen meet and talk over the situation of business so that a comparison of wages and prices of castings might be made to the interest of all concerned. The committee had heard members of the Association as well as non-members complain that certain members had cut prices on castings. The Association had done nothing to prevent it, hence there was more reason that interest in the Association should be kept up and a good feeling brought about which would surely bring confidence and in time would tend to advance prices. The committee had been advised that another Association had met monthly for over twelve years before an arrangement was made in the direction of a uniform price on stove castings, and during all those twelve years the Association was a social organiation, members becoming acquainted and a confidence developing, resulting ultimately in success instead of failure. The committee therefore pointed out the fact that members could not expect too much from this Association in a short time, but in the end they would find their memberships good investments.

The Treasurer, Josiah Thompson, submitted his report of the finances of the Association for the year just closed, showing that $1,183.91 had come into his hands and $810.48 had been paid out for expenses, leaving a balance in the treasury of $370.43.

Election of officers being next in order the gentlemen nominated at the last meeting were, upon motion directing the casting of one ballot by the Secretary, declared elected. The officers for the ensuing year, therefore, are as follows:

President, Francis Schumann.
Vice-president, P. D. Wanner.
Treasurer, Josiah Thompson.
Secretary, Howard Evans.

Executive Committee, Walter Wood, chairman; Thomas Glover, Stanley G. Flagg, Jr., E. E. Brown and William Sauter.

President Schumann then addressed the meeting as follows:

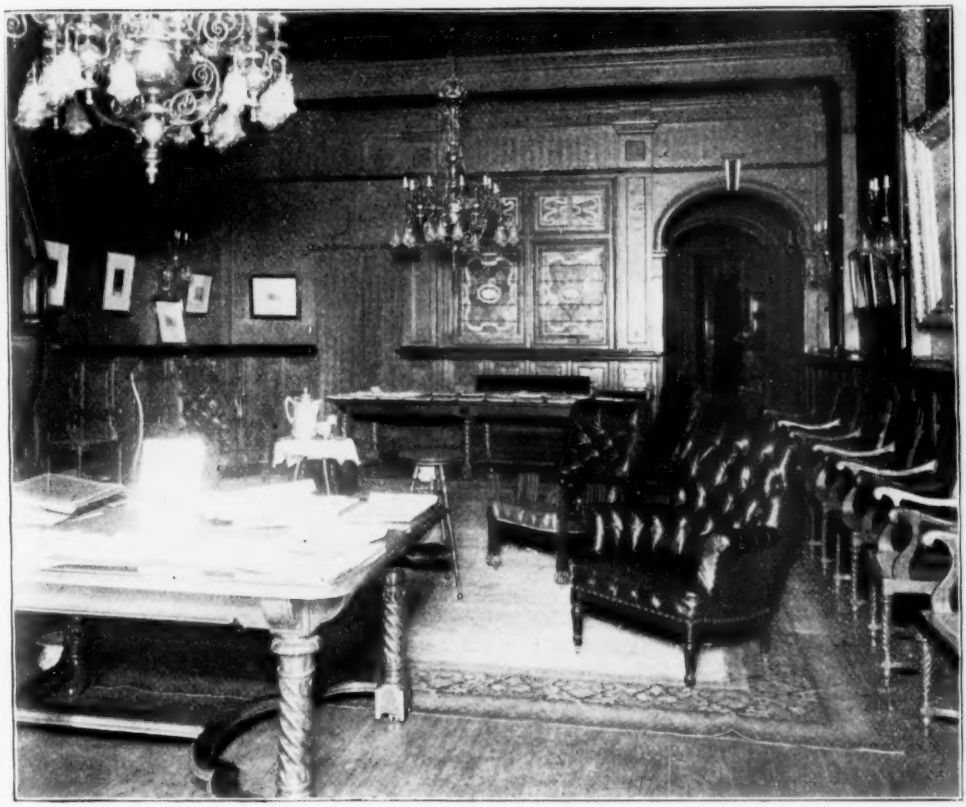
THE PRESIDENT'S ADDRESS.

The celebration of our third anniversary is an occasion to review the events o fthe past year in connection with our industry—the causes of the prevailing business depression and their effect upon our calling, and finally the utility of our Association in meeting and correcting the tendency to a greater disarrangement between the two factors, supply

and demand, or production and consumption.

The development of our country during the last four decades was enormous, beyond all preconceived ideas; nothing similar had ever occurred before in the history of the world from which anything like it could be deduced. The flow of emigration continued steadily, filling both our western territories and cities in the older states. Large sections were changed from a wilderness to populated states in a few short years. The growth was so rapid and the demands upon our industrial resources so great that from necessity we were obliged to expand accordingly. Roads, bridges, railroads, buildings, machinery—in fact all productions of civilization, which, under ordinary circumstances required years to supply, were demanded and furnished in incredibly short periods. So-called "booms," or periods of exceptional business prosperity, were the order of the day. While financial disturbances occurred from time to time, they were the result of speculation rather than legitimate projects or exploits, induced by the rush and whirl prevailing and the overconfidence of capital in any enterprise whatever.

It is evident that the pace of our growth is lessening to a more steady and enduring one, and it behooves us to carefully watch the passing events so that we may be prepared to check the momentum of the machinery which was set in motion, in time to avert disastrous results. The machinery I refer to are the various industries of our country, creating products of civilization other than that of agriculture, which produces the essentials. The capacity for the first has been expanded far beyond the needs of the country for years to come. Shrinkage in the volume of business, diminished profits and wage rate must result until the growth of the country and



One of the Reading Rooms of Manufacturers' Club, Philadelphia, where Eastern Foundrymen's Association meet.

its industries will again be in equilibrium and the much desired stability in commerce be finally attained. The following data, obtained from the Bureau of Statistics, within a few weeks, show the conditions most graphically. We find:

Year.	Population of the United States.	Increase. Per cent.
1850	23,191,876	About 38
1860	31,443,321	About 23
1870	38,558,371	About 30
1880	50,155,788	About 25
1890	62,622,250	Average 29
	Wheat and corn produced.	
	Bushels.	
1880	1,996,657,420	....
1890	2,603,452,000	30
	Railroads.	
	Miles operated.	
1880	93,296	....
1890	166,706	80
	Coal produced.	
	Long tons.	
1880	70,748,426	....
1890	150,505,745	113
	Pig iron produced.	
	Long tons.	
1880	4,144,254	....
1890	8,279,870	100

It appears that, while the population and production of wheat and corn have nearly kept pace, increasing at the rate of about 30 per cent, the increase in the production of coal and iron has been over three times as great, and railroads nearly so. We know that the uses for iron have been greatly enlarged in recent times; but not enough to account for the above excessive increase. Hence we are compelled to look forward to a decrease in the output to such a point that the increase will be more nearly equal to that of the population, because it is reasonable to assume that we will soon reach a point when the use for iron will soon be at its maximum; after which the increase in its production must equal that of the population, unless we can create a foreign market, which at present seems far removed. We must prepare ourselves for a continued diminished volume of business. Although moderate revivals may be expected in the near future, they should not mislead us to believe that the old order of things had again come. The shrinkage in business coming upon many of us comparatively suddenly—although not unexpected—signs having been manifest during the last seven or eight years—tends to, and has already caused, serious and ruinous competition. Our profits, gauged by the capital invested and close application to business, are practically nothing. Each one is striving to obtain more than his proper allotment of work, under existing conditions, cutting prices continually, vainly waiting for a time of revival, when he hopes to make good his losses, or consoling himself that he will be one of the survivors—considering himself one of the fittest—to tide over these trying times.

I maintain that our Association, when fully established, can be utilized to remedy the evil and aid us in at least obtaining a profit, however small, on the diminished amount of business remaining. Let us impress upon all foundrymen the importance of united action. Let us meet and counsel together, and let us solemnly agree to keep faith and abide by our joint action. Let us endeavor to include all foundrymen in the organization. Let us make it national, and then meet in convention to devise ways and means for our welfare. All we strive for is but a fair compensation, which seems possible only through united effort.

Let those of us who feel aggrieved, because the mere organization of our Association did not at once bring about the hoped-for improvement, consider the difficulties. We must first bring into the Association the great majority of foundrymen throughout the country before any results can be expected, and if fair men, they will do all in their power to increase our prestige rather than find fault. We have all reason to be gratified with the present condition of our Association. While our numbers are not yet great, the morale is exceptional. Our meetings have proved of interest. We enjoy our social reunions after the transaction of business, and we have learned to appreciate and respect each other.

A more universal participation in the discussions at our meetings is desirable, and I would suggest that to dispel the diffidence on the part of many of our members who deem themselves lacking in ability to debate, we give more attention to the social side of our meetings, so that a closer and more intimate acquaintance may result. We have steadily gained ground and are, financially, in excellent condition. What we need is an

extended field over the whole country. Let associations be formed in all sections that can eventually be merged into a national organization. When this is once attained the desired results will come of themselves.

Finally, I would suggest the creation of a committee on organization, whose duties would be the formation of fraternal associations far and wide. With perseverance and patience we cannot fail of success.

ing a few words commendatory of the work done by the Association, predicted a greater measure of success for it as times improved and the Association became understood and its objects better known.

John Birkinbine, of Philadelphia, one of the world's greatest authorities on all subjects pertaining to iron, then delivered a most interesting address, reviewing the downward tendency of prices for pig-iron with the be-

"Roof Garden" or Banquet Hallsixth story Manufacturers' Club, Philadelphia, where the members and their friends enjoy their Social Sessions.

NEW BUSINESS.

Under this head the Secretary read a large number of letters from foundry men in various sections of the country, written in response to letters sent out by him asking for their views of the trade situation.

The letters were, for the most part, very similar, and contained the recital of a bad year's business in the past, while holding out hopes for better things to come in the future.

J. A. Penton, editor of The Foundry, responded to the invitation of the chair by saying a few words commendatory of the work done by the Association, predicted a greater measure of success for it as times improved and the Association became understood and its objects better known.

John Birkinbine, of Philadelphia, one of the world's greatest authorities on all subjects pertaining to iron, then delivered a most interesting address, reviewing the downward tendency of prices for pig-iron with the beginning of the present century. He said: Some years ago Wm. G. Neilson, of this city, prepared a statistical chart showing the average prices at which charcoal pig iron sold in Philadelphia in the half century from 1799 to 1849. Omitting reference to quotations for special grades and eliminating the unusually high figures from December, 1814, to June, 1817, and for parts of other years aggregating forty-two months when charcoal pig iron commanded $49 to $55 per ton, the range of average annual prices was from

$47.50 in 1812 to $24.50 in 1849 for the best, or for No. 1 foundry pig.

James M. Swank, general manager of the American Iron and Steel Association, has compiled an excellent supplement to Mr. Neilson's chart in tables showing the monthly fluctuations of No. 1 anthracite pig iron in Philadelphia from May, 1842, to June, 1894, which demonstrates that the highest average price per month was in August, 1864, $73.62 1-2, and the lowest was $12.50, May to July, 1894. The range of annual average prices is from $59.25 in 1864 to $14.52 in 1894. While it might be interesting and instructive to supply reasons for the many variations in the quotations, my purpose is merely to invite attention to the general downward tendency which has prevailed.

In the interval covered by Mr. Neilson's graphic statement changes in blast furnace practice were few, the application of hot blast stoves dating from the last decade embraced in his statement. The majority of furnaces were using cold blast, and few plants exceeded a product of 100 tons of iron per month. In the decade 1839-1849 anthracite was employed as a metallurgical fuel, and anthracite pig competed with charcoal pig, but the anthracite era was just beginning. In the tables which show the prices of anthracite pig iron there are fluctuations up and down as in charcoal pig iron, but the general tendency has been toward a material cheapening of the product.

Many circumstances have aided in this, among which may be mentioned improved transportation, larger and better equipped furnaces ,advanced mining appliances, educated management and active competition brought about by increased demand and augmented output. The blast furnaces of to-day differ greatly from those of fifty years ago. Then water power, which was nearly universally supplied, has given place to massive stea mengines. The square structure of stone masonry lined with slate or sandstone has been replaced by iron shells supported on columns and lined with firebrick. Large firebrick stoves heat the blast to 1,200 degrees or more, and locomotives, cars and steam handling machinery have displaced many horses, oxen, wagons and men formerly employed. These advances were greatly encouraged by a better acquaintance and interchange of views among those who have been practical managers of our iron works.

Probably an excerpt from a record published in May, 1893, will emphasize the changes which have taken place in pig iron production. This record showed the cost of producing pig iron by the Thomas Iron Company from 1855 to 1892, giving for each six months during that time the average cost per ton of coal, ore and limestone and the amount of each used, also the cost of each of these components, the labor and supplies entering into the production of a ton of pig iron and the amounts made in each half year. Omitting the extreme high prices which prevailed during the civil war and at irregular intervals for a short time only the cost per ton of materials used shows but moderate fluctuations. Thus the cost of coal ranged from $4.95 in 1869 to $2.36 in 1861 per ton; of ore, from $4.98 in 1871 to $2.39 in 1862, and of limestone, from 82 cents in 1869 to 30 cents in 1860 per ton. The quantities of raw mamaterials used to produce a ton of pig iron evidence a material decline; the amount of ore consumed being less, indicates that either richer or better prepared ore was used; the decreased amount of foreign material requiring less flux, while these items added to improved equipment and management permitted of lower fuel consumption and larger product.

Taking the cost of raw materials per ton of iron made, the following will show the range, excluding, as above, the abnormal figures prevailing in boom seasons:

Cost of fuel per ton of pig iron, $10.07 in 1869 to $3.48 in 1892.

Cost of ore per ton of pig iron, $14.21 in 1873 to $5.34 in 1862.

Cost of limestone per ton of pig iron, $1.30 in 1869 to 35 cents in 1890-92.

Cost of labor per ton of pig iron, $8.06 in 1871 to $2.04 in 1880.

The total expense of producing a ton of pig iron is shown by the table to have varied from $29.72 in 1873 to $12.94 in 1892, omitting the extreme cost, such as $36.07 in 1864.

The general declining tendency is not to be deprecated, for it means true advancement. A blast furnace plant of the present is at a disadvantage if it does not produce as much iron in a day as the charcoal blast furnace of half a century ago made in a month, and some of the larger structures quadruple this output on average working.

turning out 2,700 and 2,800 tons per week per furnace, with occasional spurts exceeding these figures.

The same conditions which have caused a gradual average decline in the cost of pig iron influence the sale of foundry products, and if the records could be collected, the economies due to improved cupola and floor practice would be nearly as well marked as those seen in pig iron production. The average purchaser has and probably will continue to gauge his appreciation of the value of castings from the selling price of pig iron. When the metal before charging into the cupola, cost the founder one and a half to two cents, or even more, per pound, he was not considered grasping if he asked double or treble these amounts for average castings, and he then could afford to waste fuel in his cupola, stop all work on the floor to assemble men enough to bring from the flask yard a cumbersome drag or flask or to man the winches of the cranes with as many laborers as could grasp the handles. Whether the general proportions of two or three to one in the prices of castings and pig iron prevail, you know better than I, but I realize that founders must use improved cupolas, study the fuel problem, employ power cranes, allot piece work and economize labor to get a fair return for your capital and energy.

When blast furnaces were scattered and managers seldom met, advances were few; subsequently when furnace plants were located more conveniently to business centers and nearer to each other, the results of personal intercourse were seen in improved structures and practice. But the greatest progress has been since managers, superintendents, engineers and chemists or iron works united to form associations in which the structural and administrative as well as technical problems have been discussed and the results of the meetings published. Pig iron has been made in Pennsylvania for nearly two centuries, but the improvements in furnace output, fuel consumption and control of the character of product in the past twenty years have far exceeded those of all the preceding years. Much of this advance is directly traceable to the interchange of news and the personal acquaintance resulting from association.

This being true of the pig iron industry, similar results may be expected to follow the co-operation of those engaged in the foundries. Specifications for work now detail chemical composition or physical tests. A founder must understand what irons to use as mixtures, and why he uses them. He has not only his fellow iron founders as competitors, but a new generation of those who make steel castings have entered the arena. The shop with a single cupola and a five-ton hand crane must bid against a plant melting a hundred or more tons of pig iron daily, whose equipment includes heavy power cranes, large cupolas, testing and chemical laboratories and which can sustain an administrative force of experts in specialties.

Some members of the Foundrymen's Association have operated their plants when the pig iron used commanded double what they now receive for castings, and when the cost of melting, molding and pouring ordinary castings exceeded the rate per pound which the same now command when finished. The present demands close attention to all details, and if we are to progress, we may expect a gradually decreasing intrinsic value for iron and steel in all forms due to improved practice and economical methods. To be abreast of the times one must be conversant with the improvements made. Reading, correspondence, study, experiment and investigation are potent helps, but when the researches and investigations of a number having a common purpose can be discussed and compared progress is the more assured, and such an opportunity appears to be offered in the Foundrymen's Association.

The meeting then adjourned to the cafe on the roof of the club, where supper was served. After supper P. D. Wanner, the newly elected vice-president, was called upon for an address. Mr. Wanner responded to the call, and in the course of a lengthy address said that there could be no doubt as to the benefits to be derived from this association. The only thing to be regretted was that the membership had not increased to the extent desired. However, all would admit that they had been a most successful body. They had had reasonably good meetings with good attendances. He had learned more of the foundry business and business in connection with it since he had been a member than during his ten or fifteen years of active foundry life. That was why he took an active interest in the affairs of the association. He

would continue to attend the meetings just as long as the association existed and he was able to attend. The president had that evening spoken of the necessity of associations of this kind. The times and their very civilization demanded it, and if they wanted to keep abreast of the times and their requirements they must band themselves together as they were doing. Associations and combinations, for the most part, were formed out of necessity, and the necessity in their branch of business had arisen. They might not be able to accomplish in the beginning as much as they would like to, but they were putting themselves in a way to do so. Keep up the association and they would eventually accomplish their ends. He hoped to see an increased membership. It had been said that Philadelphia had more foundries and people engaged in the foundry business than any other city in the United States, and for that reason it was fitting that the work of the association should be carried on from there. They had given up the name they originally held, the National Foundrymen's Association, and had already an offspring in the Western Foundrymen's Association. He hoped there would be others before long, and that eventually they would all combine and form one general association. Continuing, Mr. Wanner referred to the tariff, and claimed credit for Senator Gorman for a tariff bill which cut down the McKinley tariff only one-third instead of two-thirds, as was anticipated. The foundry business, he believed, under the new tariff, was not going to be injured, and they would be able to build, buy, sell and move forward. He predicted peace and quiet legislation for the next few years. Concluding, he said that if business men would become united they would be able to rule politics, instead of having politics rule them. Other speeches were made by Messrs. Devlin, Rankin, Regester and Riehle.

NOTES.

The Association is to be congratulated on having such an ideal Secretary as Mr. Howard Evans. As one of the gentlemen present said the evening of their meeting, "He is just the man; had he been made for the position he could not fill it more acceptably." A wide acquaintance among foundry men, and having an exceedingly pleasant and approachable manner, he is eminently well fitted for a position requiring a liberal endowment of tact, experience, good nature and ability.

The Iron Age is greatly to be commended for the liberal policy pursued by it in always having one or more representatives at their meetings. The proceedings are always taken down in shorthand, and the Secretary himself, as well as other trade journals, are indebted to it. THE FOUNDRY hastens to acknowledge that the proceedings published on preceding pages are largely from that source.

Mr. Reihle, of Reihle Bros., well-known manufacturers of testing machinery, hit the nail squarely on the head and merited the applause he received when he stated that the Association had been having a surfeit of papers and discussions on the subject of testing iron. His suggestions as to what was needed to further increase the popularity and usefulness of the Association appeared to please.

Any society that can secure the attendance of such an authority on matters pertaining to the iron business as John Birkinbine, of Philadelphia, can feel that it is receiving enough honor for one evening. His speech, like his many writings, was full of information.

A whole sermon might be preached from the text furnished by Mr. P. D. Warner, when he said that he had learned more of the foundry business and business connected with it, and of the iron business generally, since his connection with the Association than during his ten or fifteen years' active foundry experience. Mr. Warner knows whereof he speaks, and is the last man to make such a statement unadvisedly. If he has been benefited so much, what is to prevent others being also?

Thos. Devlin, of Thos. Devlin & Co., Philadelphia, commenced business many years ago in a small way, and now their establishment is one of the largest. Anyone who heard his sturdy, independent speech at the banquet will readily understand the secret of his success.

P. J. Rankin, superintendent of the foundry of the Abram Cox Stove Co., made the most humorous speech and kept his audience in a continual roar.

The address of the President, Mr. Francis Schumann, shows that he has made the foundry business a study, and the very able

manner in which he handled his subject, and the recommendations he made, certainly indicated a degree of general information not usually possessed by such busy men.

WESTERN FOUNDRYMEN'S ASSOCIATION.

Report of Committee on Round Test Bars.

The regular monthly meeting of the Western Foundrymen's Association was held Wednesday evening, November 21, at the Great Northern Hotel, Chicago, with the president, George M. Sargent, in the chair.

REPORT OF COMMITTEE ON COMPARISON OF ROUND AND SQUARE TEST BARS.

This committee was appointed at the July meeting of the Association to investigate the matter of casting round test bars on end, according to the method proposed by Mr. Thomas D. West, of Sharpsville, Pa., as being preferable to the ordinary method of casting square bars flat.

We have followed out our tests with the apparatus furnished by Mr. West and have been guided by his directions, as to details of pouring, etc., thus taking advantage of his experience. The different members have made independent tests, so that this report represents results obtained in several foundries.

Table No. 1 represents a series of tests, carried out to obtain the different properties described in a former paper of Mr. West's, read before the Association, on his method of casting round test bars on end. These bars were cast two in a flask and poured from the same ladle of iron at the same time, and are accordingly grouped in pairs.

From the table given it will be seen that in the nine pairs of bars, only one pair (No. 8) show a solid fracture. In all the other pairs, either one or both bars show flaws. The effect of these flaws is shown directly in the breaking tests, No. 8 being the only pair that broke practically at the same weight. The percentage of bars in this series which showed flaws is 55½%.

Table No. 2 shows a series of 11 pairs of bars, tested for transverse strength, shrinkage and chill. In this series, 32% of the bars showed flaws.

In table No. 3 are shown transverse tests, comparing square bars and round bars. Each set of three bars was cast from the same ladle of iron, the square bars being cast flat in the ordinary way and the round bars on end. In this series the square bars were all perfect, showing no flaws, while of the round bars, there was 43% defective, on account of flaws.

Table No. 4 shows another series of tests, comparisons being made with square and round bars, as in Table No. 3. In this series the per cent of square bars defective from flaws is 18%, while of the round bars it is 54½%.

Still another series of tests, made by one of the committee, comparing the square and round bars, showed the percentage of poor bars, in round bars cast on end, to be much greater than in square bars cast flat, but unfortunately the record of his tests was mislaid and we cannot show the actual figures.

Mr. West's plan for determining contraction, fluidity and chill, we find to be good. His plan for shrinkage, as shown in Table No. 1, and in about 100 other bars, not enumerated, shows no uniformity and is impractical.

We are obliged to say that we cannot see anything in the foregoing results that would warrant us in endorsing the round bar, cast on end, as against the flat bar, cast flat, for obtaining the transverse strength, which is the most important test in ordinary foundry practice.

The principal difficulty met with is the frequent appearance of flaws (probably due to method of casting) which does not seem to occur to the same extent in square bars, cast flat. These flaws do not appear to be blow holes, or cavities, but rather slag, or sand flaws.

Respectfully submitted for the committee,

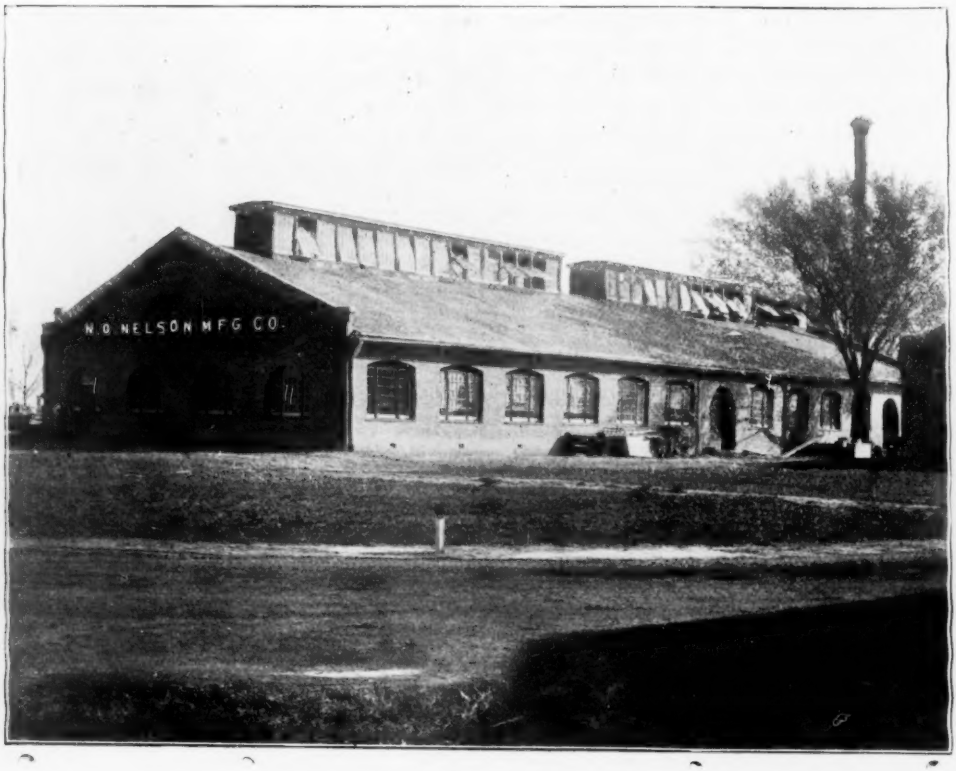
O. T. STANTIAL, Chairman.

A lengthy discussion took place between several of the gentlemen present on the points brought out by the report of the committee. The strongly adverse decision against round test bars, for which so much had been claimed, was evidently a matter of considerable surprise to many present. The advocates of the round bar cast on end had undertaken to prove that in every way it would be found superior to the square bar cast flat, while the result of experiments made for this very purpose, largely, seemed

in the minds of the committee appointed by the Association to prove the very reverse.

While some improvements in apparatus for making these tests has, it is claimed, since been made, it is not likely that the question in its present shape will be reopened for some little time.

We have not thought it necessary to reproduce here the four tables submitted by the committee, believing their report to be ample.

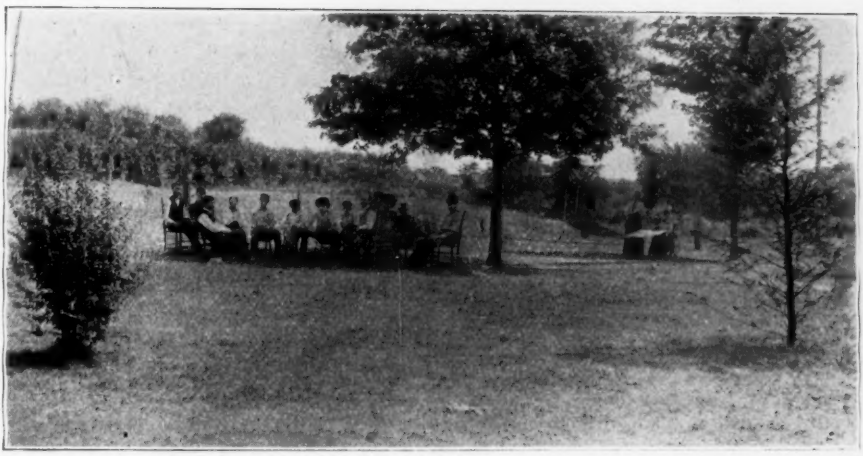


FOUNDRY BUILDING, LECLAIRE.

A Co-Operative Foundry Enterprise.

BY J. T. BRAMHALL.

One of the interesting new foundries of the West is that recently established in Leclaire, Edwardsville, Ill., in connection with the works of the N. O. Nelson Manufacturing Company, which have been removed from St. Louis to that place. It is by no means extensive, and is devoted to brass work exclusively. Its interest is more on account of its management than its processes, which mainly follow commonly approved methods with such improvements likely to be adopted in a new plant. The latter is simplicity itself. A building, brick, 60x160 feet, airy and well lighted, both by side windows and skylight, is divided across the middle, giving one end to the foundry proper and the other to the finishing room. The superintendent is W. H. Hendricks, a foundryman of wide experience in the West and formerly of the Buckeye Works in Dayton, O. He has fitted up the foundry and shop in a very convenient manner and has devised a molding machine for the special requirements of the brass work. The furnace has eight pots of No. 60 crucibles arranged in a line against the back wall, the stack being upon the outside. The pots will melt about 1,000 pounds at a heat, and are supplied with the best 72-hour coke. From the pots a carrier delivers the crucibles at the



MR. NELSON AND SOME OF HIS MEN HOLDING A BUSINESS MEETING.

CLUB HOUSE, LECLAIRE, ILL.

required spot on the floor where the flasks are placed. Another carrier is arranged along the south side of the building for conducting the sand to the machines, which are of the single pattern and operated by hydraulic power under 400 pounds pressure supplied by a Worthington hydraulic pump. Each machine requires two men and a boy, and only abut two minutes is required to turn out a flask. Ten girls are employed in the core making room, a well-lighted apartment having a separate entrance. Only one

STREET OF WORKINGMEN'S COTTAGES, LECLAIRE, ILL.

feature of construction was open to criticism, and that will doubtless be remedied as the necessity is shown. The room not being ceiled is open to the smoke and gases of the foundry, and some system of ventilation would seem to be advisable, not only in the core room alone, but in the foundry proper. The polishing room employes nine or ten men and the nickel-plating room two. Union wages are paid and the shop runs under union rules. The employes, in addition, participate in the profit sharing features which have made Leclaire one of the most notable industrial experiments in the country.

The finishing room occupies the western end of the building and is equipped with some thirty-five machines. The skylight gives an abundance of sunshine, so that there are no dark shadows over the benches and every part of the room is thoroughly well lighted, a consideration to which too much importance can scarcely be given.

The soldering bench is in the middle of the room and is furnished with eight gas jets supplied by an overhead pipe which communicates with a 100-gallon gasoline tank 150 feet in the rear of the building. Appurtenances of the building also are a fire-proof pattern vault and a coke house holding about two carloads. About fifty men are employed in this department, mostly Americans, with a sprinkling of Germans and Swedes—bright, intelligent yo ng men, all of them.

The profit sharing plan mentioned above is

altogether the most interesting feature of the works. No peculiarity of construction, no novelty of invention, no specialty in the mechanic that is attached to the system itself under which the men work at Leclaire. It seemed to me, as I wandered through the shops and among the pretty cottages, each with its separate garden, that the tinker of Elstow was with me, and showed me a "light glorified," making plain and clear those things in the life of a laboring man and his relations with the master (capital) which before were dark and clouded, even as the light which came in from the foundry skylight seemed brighter and clearer than any light I had seen in foundries elsewhere. And the whole secret seemed to be co-operation, a working together, instead of the wage system, by which the workman, like the old Saxon ceorl places the collar around his neck, receiving, however, not support for life in return, but a daily dole instead. Here labor assumes its rightful place as the partner of capital, capital being but so much accumulated labor directed by brains. Here the workingman, beside the usual wages, to conform to social usages, receives an additional per cent upon his annual wages. After capital is paid 6 per cent interest the remainder is divided at the rate of 2 per cent on wages to 1 per cent on capital. Another 1 per cent of wages (from earnings) goes to a provident fund, which is controlled by the employes themselves. The workman may, if he chooses, take stock in the company, and he then draws a dividend both on his work and on his capital. He, therefore, has every inducement to contribute to the prosperity of the business, and to advance its interests by his own labor. It is the aim of the projector, Mr. Nelson, to make the business eventually entirely co-operative, like the French experiment, from which the place takes its name, capital receiving simply interest, and the proprietor (to use the ordinary but erroneous term) merely remuneration as head director. It is proper to add that through the recent hard times there has been no cut in wages and no short time in the shops.

There are no dingy tenements in Leclaire, but pretty frame cottages. There are no shocking contrasts of beautiful show gardens and bare cinder yards. There is no water in common or oppressive water and window-blind taxes. The workingman buys his little home (four, five or six-room cottage, with garden) and pays by the month what would be considered a low rent in the city. If he becomes dissatisfied, or from any other cause desires to leave, the place is bought back and rental only is charged (at the rate of $6 to $12 per month.) He pays 25 cents a month for a 16 candle-power light, and has the use of four in his house while paying for two. If a temporary renter the light is furnished free. He has the free use of a good library, with reference books, works on political economy, etc., and periodicals. There is a boarding club house, a billiard room, a bowling alley and a co-operative store, all of which are rent free.

In short, here is co-operation in practise, under the wise but not untocratic direction of a whole-souled, unselfish manufacturer. It shows a way out of our present labor troubles, a way upward for the workingman, a safe retreat for the capitalist from storms to come. Is it not the bright, clear, strong light of heaven upon the smokey, noxious foundry of our modern industrial life?

JOHN T. BRAMHALL is an original and rising young newspaper man of Chicago. He was born in New York State and served for several years on the Albany Times and Albany Journal, graduating from the latter paper to assume the editorial management of the Cortland Journal.

This, however, was not sphere enough and he came to Chicago where he has done considerable special work for the leading magazines principally Belfords. In addition to this he is the Western representative and correspondent of Leslies Weekly. Some of his articles in that popular publication having attracted considerable attention, notably those on Pullman during the late unpleasantnes there.

The Short Tooth Gear.

Editor Foundry:

My attention was especially attracted to an article in your valuable Journal of November 10th, 1894, headed "Revolution of the Gear Trade," in which I was very much interested and which comes near to my idea of a gear. The plan is quite old and died many years ago and was quietly buried, unfortunately without any mourners. I wish to thank Michael Longridge, who pleads for the

return to the old system of short teeth for high powers. I do not wish to condemn the rules laid down by our noted gear men, who have given us charts that an ordinary man with mechanical ability could make a gear pattern from if he would work by these rules as given. But the most of the trouble is right here. A millwright figures out a diameter of 22:29 in. for a gear of one-inch pitch end seventy teeth, and failing to make such clumsy figure fit his work or his foot-rule, and thinking a quarter of an inch to be of no importance, he lets it go at twenty-two whole inches. The same process on its mate of fifteen teeth gives a five-inch gear instead of one of 4:78 in. in diameter, and the pair will never run or wear together properly. The only alternatives are to adopt the clumsy true diameter, or else use the clumsy figure .988 in. for his pitch. Again, he is apt to apply a carpenter's rule directly to the teeth of the gear he is to repair or match, and naturally takes the nearest convenient fraction of an inch for his measurement, when the real pitch may be just enough different to spoil the job. The writer is a pattern-maker of many years' experience, has made many gears designed to have two or three teeth engaged, but has failed to see three teeth engaged when gears were put in position. Again, the patternmaker, while just as precise as possible, can have two or three teeth engaged when the pattern leaves his hands, but what are the results after it leaves the foundry? It is an utter impossibility to have the strain equally distributed on each tooth where two or three teeth are engaged on a cast gear. It is possible to have it so for probably a dozen teeth or more, should the strain come all on one tooth in any part of the gear. If the gear will stand it in one place, why not have short teeth and only one tooth engaged at a time? We do not see any reason why the gear should have the unnecessary metal in the teeth. Why not have short teeth.

Akron, O. F. H. SMITH.

That "Y" Casting.

Editor Foundry.—Your November issue contains a criticism of an article of mine on the manner of molding a Y cast in this city recently by the Reading Foundry Company. The critic, R. Watson, says: "The precautionary steps taken to secure the vent and to keep the casting from cracking I think are unnecessary and superfluous." Mr. Watson does not say in what manner the precautions are unnecessary and superfluous, but rather branches off on molders, doing so because so and so had been done by so and so.

In describing the molding of Y castings, the writer confined his remarks principally to the pockets and the cooling of the same. The balance of the casting was only ordinary routine to mold. Therefore, on the principle that the softer a core is, the less liable the metal around it is to crack, it follows that the softer or the more porous the mud used in that locality, the quicker the heat would radiate from it and the more uniformity there would be in the casting cooling. As a departure from the usual methods of molding in loam, Mr. Watson remarks, are unique and none the less original. The writer has a certain amount of respect for the man who is bold enough to depart from precedent, and institute something really new and useful, and Mr. Watson has done considerable in this direction. The plan of pigeon holes is good in either floor or oven drying, but there is possibly some objections to leaving the perpendicular joints open, particularly where the bricks are subjected to compression. J. M.

More About the "Y" Casting.

Mr. Dennis Boyce, foreman of the Phoenix Foundry, Omaha, Neb., says he had occasion some time ago to make two Y pipes, such as were illustrated in our September issue. Instead of building each half of the core in each half of the mold, he built the whole core in the lower half of the mold, striking up the top part of core, and building the cope part of mold around it. This, we believe, is a much better method than that illustrated in our September issue, as it is cheaper and can be accomplished with much less handling. We thank Mr. Boyce for the suggestion.

We find The Foundry of value in our business and prefer not to miss a single number, as we desire to keep the file intact.

UNION IRON WORKS,
Spokane, Wash.

I am well pleased with The Foundry and think it should be in the hands of every patternmaker.

W. H. CARSON,
Owensboro, Ky.

THE FOUNDRY

A TECHNICAL JOURNAL DEVOTED TO FOUNDRY INTERESTS.

Published Monthly by

"The Foundry Publishing Co."

DETROIT, MICH.

DETROIT, DECEMBER 10TH, 1894.

Entered at the Post Office at Detroit, Mich., as second-class matter.

SUBSCRIPTION—One Dollar per year in advance in all parts of the United States and Canada; one dollar and fifty cents per year to all parts of the Universal Postal Union. May be sent by express, draft, money order, registered letter or U. S. postage stamps. Single copies, 15c.

CLUB RATES—Eight or more subscriptions sent at one time, 75 cents per year each. Cash to accompany order.

Advertising rates furnished upon application

SUBSCRIBERS can have address changed as often as desired

IF YOU FAIL to receive your paper promptly, please notify us.

THE FOUNDRY is issued promptly on the tenth of each month, and will spare no endeavor to furnish valuable news and information to those interested professionally or incidentally in molding, melting, mixing of metals, foundry management, etc. Persons connected with any of these lines of industry will confer a favor upon the Editor of this Journal by sending him news from their section of the country pertaining to the foundry interests, particularly individual theories and experiences of practical value.

The Detroit News Company,

Publishers' Agents, Detroit, Mich.

DEALERS SUPPLIED BY

The Albany News Company, Albany, N. Y.
The Baltimore News Company, Baltimore, Md.
The Brooklyn News Company, N. Y.
The Buffalo News Company, Buffalo, N. Y.
The Central News Company, Philadelphia, Pa.
The Cincinnati News Company, Cincinnati, Ohoi.
The Cleveland News Company, Cleveland, Ohio.
The Colorado News Company, Denver Colorado.
The Detroit News Company, Detroit, Mich.
The Minnesota News Company, St. Paul, Minn.
The Montreal News Company, Montreal, Canada.
The National News Company, New York, N. Y.
The Newark News Company, Newark, N. J.
The New Orleans News Company, New Orleans, La.
The New England News Company, Boston, Mass.
The New York News Company, New York, N. Y.
The Northern News Company, Troy, N. Y.
The Omaha News Company, Omaha, Neb.
The Pittsburg News Company, Pittsburg, Pa.
The Rhode Island News Company, Providence, R. I.
The San Francisco News Company, San Francisco, Cal.
The South West News Company, Kansas City, Mo.
The St. Louis News Company, St. Louis, Mo.
The Toronto News Company, Toronto, Ontario, Canada.
The Washigton News Company, Washington, D. C.
The Western News Company, Chicago, Ill
The Williamsburg News Company, Brooklyn, E. D., N. Y.
The Wisconsin News Company, Milwaukee, Wis.

The Trade Outlook.

Business is getting better, no question about it, and although this is not the season for the foundrymen's harvest, yet a large number of them are fairly busy. The large large argicultural shops are at work with better prospects than for two seasonspast. The stove foundries are running in several directions, and in the iron districts those foundries who look to rolling mills, etc, have many of them got considerable to do.

Architectural and jobbing shops, as a rule, are dull, except those among the latter who may have contracts to fill. While the volume being done is largely below the normal amount, it is yet showing a steady increase, and if prices would only stiffen in proportion, the foundryman's lot would show some indication of being a happy one. In certain lines of pig iron, principally Bessemer, however, prices are improving, and are certainly not going any lower.

The scrap market feels the effect of this, and dealers are not so anxious to sell at any price.

The prospects of a rise in the price of coke do not seem so bright for the ovens as they did a short time ago, but sooner or later it is likely to come.

Both of One Mind.

In this issue THE FOUNDRY gives its readers the benefit of the views of two gentlemen representing different interests on the subject of organization.

They are both well known to reading public by reputation, one being Francis Schumann, president of the Tacony Iron & Steel Co., Tacony, Pa., and also president of the Philadelphia Foundrymen's Association; the other being Martin Fox, president of the Iron Molders' Union.

The views of the first-named gentleman are embodied in his annual address to the members of that Association, and the views of the other being a brief article contributed by Mr. Fox for this issue.

Both take a very similar view of the matter in every way, and there is a striking resemblance in the language and arguments used, and, we imagine, in the motives that prompted each.

Mr. Fox presents an argument that is, if anything, more convincing because he cites a case well known to many of our readers,

showing the substantial benefit to be derived from thorough organization to not only the employe, but the employer also.

A few years ago strikes, lockouts and labor troubles between stove manufacturers and their men were a matter of monthly occurrence, some of them assuming vast proportions and costing all parties a lot of money and lasting a long time.

Since the formation of an organization, however, by the employers, and the appointment of a committee to meet the officers of the molders' society whenever necessary. All this has been done away with, and peace reigns, much to the profit of all parties.

We hope the time is not far distant when Mr. Schumann and the organization he so ably heads may receive some substantial benefits as a result of the work they have been doing during the past three years. Organization along legitimate lines for proper purposes always commands the sympathy of the public, and in nearly every instance its success is retarded by the over selfish or narrow man, who is unwilling to lend his support and live up to honorable principles.

A Comparison.

Recent compilation shows Pennsylvania to be the largest State in point of the number of iron foundries. It contains some 606. New York is next with 560, Ohio 356, Michigan 260, Massachusetts 175, Indiana 147, New Jersey 139 and Connecticut 113.

Pennsylvania has nearly as many iron foundries as the entire territory west of the Mississippi river. Pennsylvania or New York have more foundries than the entire south, east of the Mississippi, south of the Ohio and the southern state line of Pennsylvania.

Those States east of the Mississippi and north of the Ohio rivers, including Wisconsin, Illinois, Michigan, Indiana, Ohio, Pennsylvania and New York, have 62 per cent of the total number of foundries. The Southern States east of the Mississippi and south of the Ohio river and Pennsylvania have 13 per cent of the total. The territory west of the Mississippi has 17 per cent and the New England States 8 per cent.

It would appear that the states east of the Mississippi, north of the Ohio and west of the New England States, comprising about 12 per cent of the area of the United States, has 62 per cent of the iron foundries.

There are 20 cities having each 20 foundries and over. Of these Chicago leads the list with 72 foundries within its limits. Philadelphia has 59, Brooklyn and Pittsburg 47 each. Buffalo has 40 and Cleveland 35. St. Louis has 30, New York 26, and Detroit, Baltimore, Troy, Cincinnati, Milwaukee and San Francisco 25 each. Bridgeport (Ct.), Providence, Erie, Springfield (O.), Dayton, Louisville and Indianapolis have from 20 to 24 foundries each.

He is an Authority.

The most excellent article appearing elsewhere in this issue, from the pen of Mr. F. J. Davis, is deserving of the best attention of every foundryman in the country, and especially brass foundrymen. He calmly deals with the subject in a very free, open, and at the same time intelligent manner, and as he is one of the best informed authorties on the subject in the country, anything he says should certainly have great weight. It is customary for those engaged in manufacturing for the market any material whose ingredients are not generally understood to surround the whole business with a great air of mystery and secrecy.

This, however, is not Mr. Davis' policy; he evidently believes there is already too much general ignorance on the subject of the alloys and thinks that if they are to come into more common use their properties and value must be more generally known.

All the Compliments of the Season.

THE FOUNDRY has said so much in days gone by concerning the kindness of its thousands of friends, both subscribers and advertisers, and the debt of gratitude we are under to them for enabling us to make such a paper as this possible, that we feel it a little out of order to even indirectly refer to that subject again. We believe, however, we can consistently and honestly express a sincere wish that the season may be an especially joyous one and that the coming of 1895 may bring with it such prosperity and happiness as we feel sure they all deserve.

For ourselves we do not know that we have anything to promise for the future; no reforms to inaugurate or new leaves to turn. The service we have given in the past is the best we could do under the circumstances, and as we believe a very general measure of

satisfaction exists as to our record in that respect, we can only say that with the increasing influence of our magazine, the added experience of the years gone by and the prestige won by fair dealing, we hope to be able to give our friends such an improved service that they will continue to feel each succeeding number better than its predecessor.

The Scrap Heap.

Conservatism is a good thing in its place, but the extreme article dished up at times by the commercial agencies in their weekly reports published in the daily papers, and the pessimistic review of the trade situation as we find it regularly in some of the trade journals, is of a kind to do business more harm than good.

* * *

We do not favor by any means an exaggerated picture in which it is made to appear that business is better than it really is, or that prices for raw material is higher or likely to be higher; but on the other hand, continued use of such expressions as "Little or no improvement is visible," "The outlook for increased activity is not encouraging," "We cannot report any change for the better," "Prices seem to be low and going lower, if anything," are enough to give the most sanguine man the blues if he pays any attention to them whatever.

* * *

Either the writers of these "scary" so-called "weekly letters," "reviews," "summaries," "reports," etc., never stir outside of their dens and move around to get posted, or else they are naturally dyspeptic and having such a hard struggle themselves that they cannot imagine the sun of prosperity shining on anyone else.

* * *

This may appear overdrawn, but it is not, and we could submit eveidence that would convince anyone who is skeptical, taken from published statements of what are known as "authorities" during the past few weeks.

* * *

Just as a matter of information to anyone interested, we wish to submit that 50 per cent more iron is being melted now than a year ago. We know a great number of foundries that are busy, some that have all they can possibly do, and others that have work for many months ahead, and while prices are not perhaps as good as they were, yet the work is being done.

* * *

It is so easy to believe that business is bad that it should be the mission of those who have influence, or aim to secure it, to encourage by all the means in their power, and if these reports are not regarded as authentic, as their authors would wish, they have only themselves to blame.

* * *

Just to change the subject, we might mention that it seems as if both the Foundrymen's Associations had suddenly realized the need of a little change, and hence both relegate into the background this month the much-worn subjects of analysis, tests, etc.

They were a long time breaking away, but they did it at last.

Kranks Korner.

Nails are a very useful article in the foundry. Some molds could not be made without them, or a substitute. For this reason principally a great many molders would have to stop work if they could not get nails to use. It has become a habit, and they cannot well get out of it. There are, on the other hand, some molders who do not use one new nail in a month, not because they do a poor class of work, but because they have been raised in shops where nails were scarce, so to speak. In molding a split pattern job of any kind they do not place a forest of spikes around the pattern, because they have already gaggered the sand around it, so that it does not require nailing. There are, on the other hand, molders who have to have nails for most everything. They are helpless without them. They have contracted bad habits during their apprenticeship and find it hard to get along after they get into another shop where they do not distribute nails so lavishly.

* * *

The use of flour in making cores is to a great many a useless expense. Flour makes bread and thousands want bread, therefore the use of large, or even ordinary, quantities of flour for core making seems closely allied to a waste or extravagance. Core sand can be made adhesive by using clay wash and molding sand, at much less expense than

with flour. But flour imparts a softness to the core that cannot be readily secured in any other way. It makes the core yield to the shrinkage of the metal around it, which is not the case with core made of clay wash.

* * *

There are various degrees of service required of the cores in different castings, some needing very soft cores, while with others the softness of the core is not of so much importance.

* * *

Cores may be divided into two general classes of service, viz: Those in which the core is nearly if not wholly surrounded, and those in which the core is only partly covered with metal. The former are the most difficult to make. They require a strong flour mixture of core sand and should be baked brown, or enough to burn the flour out of the sand, which will give the core porosity and the necessary yielding qualities. Therefore soft cores are required for this class of work, and flour or an equivalent should be used.

* * *

With the other class of cores, which constitute the large majority, flour in the sand mixture is not necessary, because the same results can be obtained by mixing from one-eighth to one-half of new molding sand. This gives the sand a body and does not impair its porosity to any great extent.

The Mission of Trade Unions.

Trade unions, the only practical protest of the mechanic and laborer against the unfair exactions of unscrupulous employers, have by many intelligent people been looked upon as a combination of irresponsible workingmen; organized purposely to conspire against the industrial peace and prosperity of the producing communities, and as such they and their members have been denounced as menacing and dangerous elements, which should be suppressed, even if need be by the strong arm of the law. Yet to-day, notwithstanding all the opposition to their progress, trades unionism is steadily advancing in this country both numerically and in influence far beyond the most sanguine expectations of its progenitors.

In the early organization of trade unions their sole object was to secure to its members a rate of wages which the majority decided was just compensation for the time worked and labor performed; the payment of any less by any employer was the one and only grievance that trade unions knew, and to conform to their idea every effort was made by its members to exact from such employers a certain rate of wages regardless of whether their business justified them in paying the prices asked for or not. Years of experience in dealing with these wage questions have taught the intelligent trade unionist that manufacturers do not reap all the profit over and above what is paid for labor, and that they must look beyond the employer to secure to themselves an equitable share of the wealth created by the products of their labor. The organization of labor and the regular meetings of its members has been the means of schooling the workingmen on economic questions such as no other method of education has ever devised. This, coupled with their practical experience and knowledge of their respective trades, has taught them to wage no war against the man who invests his money in a legitimate business and becomes an employer of labor so long as he pays the same rate of wages as paid by his competitors. It has been the aim and object of the officers of the Iron Molders Union of North America to permanently establish in the several branches of the trade of iron molding a minimum rate of wages which, when accomplished, would place all foundrymen on an equal footing as far as wages and prices paid for piecework is concerned. In our efforts to bring about the desired result we have met with encouragement from many employers, and with very few

MARTIN FOX was born in Cincinnati, O., in the year 1848, and at an early age commenced an apprenticeship in the foundry, his only education having been received at the night school. In 1865 he joined the Iron Molders Union.

After many years of travel and attending as delegate several conventions of this organization, he was elected Secy. in 1886 and President in 1890. His adminstration has been marked by the display of much conservatism regarding the settlement of troubles between employees and employer and among the former he has an unusually large number of friends.

exceptions there has been no serious opposition shown.

Recognizing the fact that all manufacture is competitive, and that to secure to the manufacturer fair returns for his capital invested and to the workman satisfactory wages for his labor, why should not the employer assist in keeping the wages and prices at such a standard that a fair equivalent would be returned for his capital invested and the labor performed? With this object in view and carried into practical effect by the unions and the manufacturers, is not the trades organization a benefit to the employer as well as to its members, and would it not be the means of preventing the ruinous competition now prevailing under which the one cuts the prices of his castings or wares, knowing when he does so that he cannot furnish the goods and maintain his profits unless he reduces the wages of his employes, and when the union tries to prevent it, it is at once denounced as encouraging a strike. It is clearly evident, then, to any candid and sensible person that manufacturers should favor and encourage trades unions, because when the workmen agree with their employer that in maintaining the selling price and wages they also make it possible to receive fair wages, it shows they are in sympathy with each other and are striving for the mutual benefit of all concerned in the business. It has been noticeable during the past three years in the stove molding branch of the trade that there has been no serious trouble, which condition has been brought about by the action of the organization authorizing its officers to meet the representatives of the Stove Founders National Defense Association, at which meeting rules were agreed upon whereby all grievances and questions of wages are to be adjusted by the officers or their respective committees. The agreement between the two organizations provides that the principles of arbitration shall be adhered to in the settlement of any disputes or grievances. The committee to whom they are referred to consist of three stove manufacturers appointed by the Stove Founders' National Defense Association and three stove molders appointed by the Iron Molders' Union. Whenever there is a dispute between a member of the S. F. N. D. A. and the molders in his employ, and it cannot be settled amicably between them, it is referred to the presidents of the two associations, who by themselves, or by delegates, give the matter due consideration, and if they cannot decide it satisfactorily, they may summon the conference committee, to whom the grievance is referred, and their decision, by a majority vote, is final and binding alike on each party for twelve months. The agreement also provides that a general rate of wages shall be established for each year without change. Pending adjudication by the presidents or conference committee, neither party to the dispute can discontinue operations, but must proceed with their business, proprietor and workmen, in the ordinary manner.

Under this system of agreements it has been shown what can be accomplished in preventing strikes, maintaining selling prices and wages, and if every stove manufacturer and stove molder could be induced to become a member of their respective organizations, they could be brought into a position of mutual advantage, so that in case either of the individual members refuse to abide by the decisions they would forfeit all rights and privileges conferred under the agreement.

Of late much has been said on the question of conciliation and arbitration, compulsory arbitration having many advocates, but it has not been clearly shown where it is possible to make the latter effective unless by the thorough organization of the parties interested. To make arbitration effective and just, the arbitrators should be chosen with particular reference to each particular case as a person who knows nothing about the details of the work involved is not qualified to decide the question in dispute. These questions must be considered by men familiar with the work and employment under consideration, as well as with the requirements and conditions of the employer, as differences between employer and workmen can only be satisfactorily adjusted upon a basis of fair concession that gives to neither party unfair advantage, but secures to both a mutual benefit, and under no other rules or strict forms of law can satisfactory results be obtained to these perplexing labor controversies.

Martin Ford

Pittsburg and Vicinity.

Predictions are numerous by men in all callings, the air being full of all sorts of rumors. The belief is widespread that an expansion of business is probable and at fractionally better prices. It is reasonable to believe that the late elections will strengthen confidence among all classes of manufacturers and that more or less business held back for good or poor reasons will soon creep in.

There is no occasion for a sudden expansion of business, although it has happened that after a period of dullness buyers hastened to place orders. The iron trade has gained some advantages during the past few months and lost some, but, on the whole,, considering the danger to which it was subjected, the industry is in a stronger condition than a year ago.

There is a probability that a conservative policy will continue until prices are driven some way, doubtless upward. The downward tendency of prices has been checked to a certain extent, and in some lines the outlook is better. In outlying districts, that is, from all large cities, there is far more confidence prevailing than in the hearts of the business centers. What causes this is unknown, but it is nevertheless a fact. Money also appears to be much easier in those vicinities. The retail trade in central States seems to be gradually assuming its old form, and it is thought by many that a moderate-sized business will be forthcoming after the first of the new year. New projects are few; which does not argue very well for the coming few months.

Many sellers are not anxious to close contracts at present figures for delivery far into the future, the opinion being that an improvement will soon set in. Present prices for foundry irons are as follows:

No. 1 foundry	$11.25@11.75 cash
No. 2 foundry	10.25@10.75 cash
No. 1 charcoal foundry	17.00@17.50 cash
No. 2 charcoal foundry	16.00@16.50 cash
Charcoal cold blast	23.00@24.00 cash

The new plant of the Pittsburg Architectural Iron Works, Ltd., at Canonsburg, is rapidly nearing completion. The foundations for the engine and boiler rooms, together for the building of two cupolas in the foundry, has been begun. Operations are expected to be begun by February 1.

Application has been made for the appointment of a receiver for the Allentown (Pa.) Foundry & Machine Co., which failed with book accounts owing it of $8,000.

McVay & Walker, founders and machinists of Braddock, have still a good-sized force of men employed at their works.

The Duquesne Forge Company's plant at Rankin has been running fairly full for the past few months.

The McKeesport Foundry & Machine Co. has made a number of necessary repairs to the cupola and engines, which caused the plant to be idle for a week or so.

The Leechburg Foundry & Machine Company has, among other orders, one for a Mesta pickling machine, including composition metal plates.

The Frank-Kneeland Machine Company, to meet increasing business, has put up an additional air furnace, drying oven and roll equipment. A third Shaw electric traveling crane was recently put in operation, while improvements have been made in the machine shop equipment.

The foundry and machine shops of John Corbus, at Beaver Falls, have been kept running fairly full for the past few months.

M. A. Cutter is making a number of improvements in the foundry department of his plant at Latrobe.

B. D. Northrop, of Washington, Pa., has just completed a new foundry, 34x60 feet, fitted up with a Whiting cupola, Marshall elevator and other improved machinery.

The National Pipe & Foundry Co., of Scottdale, is erecting an additional foundry building, 80x301 feet; a pipe cleaning shed, 30x301 feet, and a cupola house, 26x35 feet. The Sheffler Bridge Company, of Pittsburg, has received the contract to erect the buildings.

Chicago and Vicinity.

What is the outlook for 1895? All to whom this question has been asked expressed the opinion that it will be a prosperous year, but expect very little change in the conditions of trade for the next three months. Very few firms are looking for new business, owing to the fact that collections are very slow, and most all work is let on sixty and ninety days. They would rather not have the work than to take it and carry the accounts over into next year. This, and the desire to keep the stock down as low as possible until after the first, leads one to believe that we can expect very

little business this year. It will take the entire month of January to get things into shape and to decide what course is to be pursued. Business, like an engine or piece of machinery, requires an occasional overhauling, and the experience of the past year has shown the many defects of the systems in use, and those who have been fortunate enough to weather the storm will start the new year with the determination to avoid the tight places by the adoption of newer and better systems. Among the many reforms that will take place, attention should be given to the question of floating paper, and this practice prevails in Chicago. It is safe to say that there would not have been one-half the failures, were a cash basis employed. For many a good firm has failed by accepting paper which afterward turned out to be worthless. As a usual thing, firms accepting notes endorse them, deposit the same, and draw the money thereon, and there are many instances where notes came due the original issuer thereof had either failed or asked an extension of time, which left the one who accepted the note to make it good. They had then, so to speak, borrowed money on their own credit. It was the firms that had more of these notes than they could carry, that failed, of which the past year gave many examples. It is to be hoped that the business men, with the coming year, will put a damper on the excessive use of paper and in the future insist on the payment of their claims in cash. They should look with suspicion on and refuse to accept notes from any firm without gilt-edge security.

The Chicago Architectural Iron Works are running full. Have contracts for the ornamental iron work for Court House at Fort Worth, Tex., and Postoiffice at Jacksonville, Fla.

David Bradley Manufacturing Co. will close out their foundry January 1. They are located in the heart of the city and the land is too valuable to be occupied by a foundry.

Lawson Bros. are running three heats a week.

Gates Iron Works are fairly busy. They have neither hired or discharged any of their present force for the last three months.

The Home Foundry are running five days a week.

Wier & Craig are running three heats a week.

Among the Foundries.

J. C. Harris will operate the Sheffield, Ala., Stove Works.

Wm. Shinner, Son & Co., of Freemansburg, Pa., are reported busy.

Ritter's foundry facing mills at Freemansburg, Pa., are reported busy.

Abram Cox Stove Foundry, of Lansdale, Pa., has started up with eighteen journeymen.

Wm. Duffus, of Brooklyn, N. Y., has erected a number 4 Whiting cupola of the latest type.

Gifford Bros., Hudson, N. Y., are very busy, their machine shop being run day and night.

Ford & Donnelly Foundry, of Kokomo, Ind., are enlarging their boilermaking department.

D. C. Van Brunt's foundry, Horicon, Wis., started up recently, after an idleness of some eight months.

The Holland radiator plant at Bremen, Ind., has been sold to Chicago and Indianapolis parties.

The new Valley Foundry, owned by J. McAfee, Paradise Row, St. Johns, N. B., has begun operations.

The Alabama Iron Works, of Birmingham, Ala., are fitting up for the manufacture of malleable iron castings.

The Addison Pipe & Foundry Co., of Cincinnati, O., recently cast an iron pipe 100 inches in diameter, to order.

The plant of the Lincoln Foundry & Machine Co., of Pittsburg, is practically completed and will be put in operation soon.

The Whiting Foundry Equipment Co., of Chicago, have shipped a large cupola to the Santa Ana (Cal.) Foundry & Machine Co.

The Indiana Car & Foundry Co., of Indianapolis, are doing a great deal of repairs, with not a great deal of new work in sight.

The Lansdale Iron Foundry, Lansdale, Pa., has passed into the hands of the Phoenix Foundry & Manufacturing Co. of that place.

A $370,000 order for iron pipe for the Japanese Government has been secured by the Howard Harrison Pipe Co., of Bessemer, Ala.

The Berlin Iron Bridge Co., of East Berlin, Ct., have just completed for the Baldwin Locomotive Works, of Philadelphia, Pa., the steel roof trusses for the addition to their car wheel foundry.

The large roll pit, built by the Bridgeport, Conn., Boiler Works, for the Birmingham Iron Foundry at Derby, has been delivered and set in place.

The Craig Reynolds Foundry Co., of Dayton, O., are running with a full force, with enough orders on hand to keep them busy during the winter.

The Fairhaven Iron Foundry, of Fairhaven, Mass., are increasing their capacity. They are putting in another Whiting cupola of three tons per hour capacity.

The Industrial Works, of Bay City, Mich., have secured the contract to furnish four thirty-ton cranes for the Nationol Foundry & Pipe Works, of Scottdale, Pa.

A severe wind storm at Meridian Miss., recently did considerable damage to a number of manufacturing plants, among which was the Meridian Foundry & Machine Shop.

The contract for rebuilding the burned part of the Bath Iron Works, Bath, Me., was let on November 22d, which indicates that the contemplated removal to New London is off.

Kirchle, Brentam & Oberdorfer, stove manufacturers, of Evansville, Ind., have shut down, owing to overproduction in their line of stoves, but will resume about January 1st.

In an interview recently one of the stockholders of the Hubbard foundry and machine shop, of Warren, O., which was burned some time ago, said there was a possibility that the plant would be rebuilt in the spring.

Robert MacKellar's Sons, of Peekskill, N. Y., have placed in position a new turbine water wheel built by Olive Scott, of Bennington, Vt. This new motive power will double their capacity for grinding seacoals, charcoals, blacking, etc.

A dispatch says: Thos. Sharp & Co., iron founders and machinists, of Salem, O., have brought suit against the Salem Water Co. for $35,000 damages, because of the inefficiency of defendant's water works during a fire at plaintiff's plant some six months ago.

Personal.

F. E. Tryon, of Syracuse, N. Y., has taken charge of the foundry department of the G. D. & V. F. Pohl, at Ava, N. Y.

Mr. Thomas D. West is announced for a paper at the December meeting of the A. S. M. E. at New York on "Relatvie and Special Tests of Cast Iron."

Mr. J. W. Keep is on the program of the A. S. M. E. for a paper on "Relative Tests for Cast Iron," which will be the report of the committee appointed by the society.

Mr. E. Freeman, for many years foreman of the Van Brunt & Wilkins Manufacturing Co., of Horicon, Wis., has recently taken charge of the Muscatine Iron Works, Muscatine, Ia.

New Foundry Enterprises.

Mr. Ricketts has begun work on his brass foundry at Crocker, Ind.

M. Hughes & Son are erecting a new foundry at Potsdam, N. Y.

P. W. Lownes, of South Milwaukee, Wis., will put in a new cupola.

Curtin & Butt, of Alexandria, Va., are making extensise improvements in their foundry.

The Whitely reaper works, of Muncie, Ind., recently destroyed by fire, will be rebuilt.

There are rumors of a charcoal furnace, pipe and jobbing foundry to be built at Ogden, Utah.

The Foell Architectural Co., of St. Louis, Mo., has been incorporated by E. & A. Foell and Henry L. Recker.

It is reported that J. W. Westwick, of Galena, Ill., has begun a 40x90 feet addition to his foundry, which will double his capacity.

John Garvey, of Lima, O., has been corresponding with Walkertown, Ind., parties with a view to starting a foundry in the latter place.

The Beaver Dam Malleable Iron Co., of Beaver Dam, Wis., have increased their capital to $45,000 and are to make improvements.

A press report from Red Jacket, Mich., says Capt. W. E. Parnell will rebuild his foundry in a short time, after the plans of the one burnt recently.

The Ivens Manufacturing Co., of New Orleans, La., are building a plant at Meridian, Miss., for the manufacture of dredges, sugar machinery, cotton presses, etc.

The Davis & Rankin Co., manufacturers of creamery, dairy, butterine and canning factory equipments, will build a plant to cost $250,000 at Harvey Cook Co., Ill.

Salem Foundry has been incorporated in Illinois with a capital stock of $10,000. The incorporators are A. Selen, J. G. Carlson and O. A. Lundgren, who will do business in Chicago.

Fire Fiend.

Havens Foundry, Commerce street, Cincinnati, O., was damaged by fire recently.

Fink, Lane & Fink's foundry, Washington, Pa., was slightly damaged by fire on the 28th.

The Oakland Iron Works, of Oakland, Cal., was destroyed by fire recently. Loss, $20,000; fully covered by insurance.

The gray iron foundry of Gartland, Dijon & Co., of Marion, Ind., was recently destroyed by fire. Loss, $7,000; insurance, $2,000.

The Union Foundry & Car Wheel Works at One Hundred and Fourth street and Erickson avenue, Pullman, Ill., was burned on the night of November 28, supposed to be of incendiary origin. Estimated loss, $30,000; insurance, $25,000.

James Cochran.

James Cochran, a prominent coke manufacturer and one of the wealthiest men in Fayette County, died on the evening of November 25, at his residence in Dawson, Pa., aged 72 years. Mr. Cochran was given the distinction of being the pioneer coke manufacturer in the Connellsville region. He was the senior member of the firm of Brown & Cochran, coke manufacturers, and also a principal stockholder in the Juniata Coke Company and the Washington Coal & Coke Company. He was the owner of large coal tracts in Virginia, and was actively identified with the development of the Connellsville coke region. He was one of the organizers of the First National Bank of Dawson, Pa., and was its president for many years. His death was due to a dropsical affection which had confined him to his home for the past month.

Henry Nishwitz.

Henry Nishwitz, foreman in the molders' department of King & Andrews' foundry, 218 North Union street, Chicago, Ill., was accidentally electrocuted a couple of weeks since while adjusting an arc light. Something about the carbon fixtures failed to work just right and Nishwitz reached up with an iron rod to shake the carbons into place. In an instant the current was transmitted down the metal and Nishwitz fell to the ground heavily. Workmen rushed to his side immediately, but found life was extinct. The body was taken to Mitchell's morgue, 1223 Milwaukee avenue, where an inquest was held. Nishwitz was 25 years old, a native of Germany, and was unmarried. He lived at 55 Byron avenue.

Enameling Cast Iron.

Clean and brighten the iron before applying the enamel. The latter consists of two coats, one known as the body and the other as the glaze. The body consists of 100 parts of ground flints and 75 of borax. Forty parts of this mixture is taken and ground or mixed with five parts of potter's clay, in water, to the consistency of paint. A coat of this body mixture is applied to the article and dried, and the glaze powder, made as follows, sifted over it: 100 parts powdered Cornish stone, 117 borax, 35 of soda ash, 35 of nitre, 35 of sifted slacked lime, 13 of white sand and 50 of powdered white glass. These ingredients, which constitute the glaze, are all melted together, cooled and pulverized. To 45 parts of the pulverized glaze, take one part of soda ash and mix in hot water, and then dry and sift on the article to be enameled. The latter is next set into an oven to bake, after which it is placed into a muffle furnace to fuse into a glaze.

He made a Mistake.

Thomas Wathey is a familiar name to readers of foundry literature, and the gentleman himself is well known in many sections of the country, especially Ohio, where he resided for many years.

We take the liberty of reproducing a recent letter received from him as showing the extent to which one of the friends of this paper will go to show his loyalty to it and all connected with it:

"When THE FOUNDRY was first published I thought it would be only about a three months' wonder, and to try to help it along I subscribed for it. I am agreeably surprised to find that it gets better every month, and hope that it will live for many years. I would not be without it if it cost $10 a year.

"Herewith please find $3, two for the enclosed names, and if you are acquainted with an unfortunate brother molder who cannot afford to take your paper, please send him a copy for the year.

I would likewise state that the advertise-

ment of the Joseph Dixon Crucible Company proved of great value to me, as their silver lead blacking is the best I have ever used in an experience in the foundry of about forty years.

THOMAS WATHEY, Supt.
Jerome, Ariz.

All the way from Utah.

James Anderson & Sons, of Salt Lake City, Utah, in renewing their subscription to The Foundry, write as follows:

"Enclosed find one dollar, the subscription price for your valuable book for another year. It is always read with pleasure and satisfaction by us. Trade is picking up a little at present, but prices are quite low. hope for the best and trust that business will still increase and prices raise with it, as we labor under considerable disadvantage here in the mountains. We manufacture neither coke nor iron; therefore, when trade is dull and prices cut it puts us to our wits' end to make a living.

We can say that we have and are still holding our own by energy and economy. When we started in business our main aim was to do good work, for which we now have the reputation, and we desire to give your valuable book, THE FOUNDRY, a share of the credit. We have always been and are still willing to live and learn by the experience of others that we have the opportunity of obtaining.

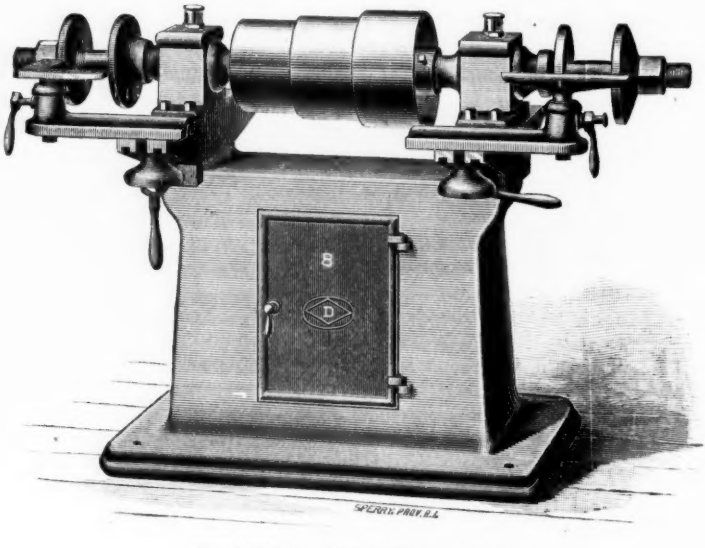
"Wishing you and your paper prosperity for the future, we remain,

"Yours truly,
"JAMES ANDERSON & SONS,"

An Improved Emery Wheel Stand.

An emery wheel and stand is almost as much of a necessity in a foundry as the cupola itself, and it is especially pleasing to know that their advantages when intelligently used are becoming better understood.

For foundry purposes a little cheap rickety stand is useful only to produce profanity. Something is needed of sufficient strength and stability to operate good sized emery wheels driven by, say, a 5-inch belt and upon which a heavy casting can be ground with satisfactory results. Such a one is illustrated in the annexed cut, and as it is made by the Diamond Machine Company, of Providence, R. I., who have for many years made emery wheels and stands a specialty, it is fair to presume that it represents the best ideas in this line up to date.



IMPROVED EMERY WHEEL STAND.

The Wooley Foundry, Anderson, Ind., is turning out two drop hammers for the Wright Shovel Works extension. Their weight will be 26,000 pounds.

James Chalmers.

The Unvarnished History of a Common Man.

BY W. EDWARD.

CHAPTER XII.

(CONTINUED FROM NOVEMBER NUMBER.)

It was in Marshall that I had my first experience in a strike, and, while the grievance was a trivial one which could easily have been settled, and was as much in the interest of the firm as the men to rectify it, by the stubbornness of the superintendent and his cavalier treatment of the committee which waited upon him, the men were forced to strike and remain out nearly two weeks before the justice of their demands was conceded.

It was on a Tuesday morning that I arrived in Marshall, and my first care was to look for a job. The car shop was busy, and when I "struck" the "boss" for a job he told me to come on in the morning. I was not anxious to go to work right away, and I was not feeling very well, and wanted to wait until Monday, but they were rushed with work and he insisted on my going to work the next day. Accordingly, I showed up the next morning and he put me in the brass shop. It was all piece work in the iron foundry with the exception of two floors, where most of the jobbing work was done, and on these two floors they paid three dollars a day. As I had expected to get a job on the floor I, of course, said nothing about wages until one of the men asked if I had made any arrangement about what I was to get? I said that I hadn't, and he advised me to find out before I did any more. I thought his advice was good, and as soon as I had a chance to see the foreman I called him over and asked what he proposed to pay me. He said he didn't know, that the man who worked there before got two-twenty a day, but he thought he could pay me a little more. I didn't say a word, but reached for my coat and commenced to put it on. "What are you going to do?" said he. "Why, I replied, "I'm going to quit, you don't expect me to stay here and do a man's work for a boy's wages?" "Well, you needn't be in such a hurry about quitting," said he, "I haven't said what I was going to pay you." "What wages do you think you ought to get?" I told him that I understood they paid three dollars for day work, and I didn't propose to work for less, so long as I worked for him by the day, either on the floor or in the brass shop. Then he told me a nice little fiction about his having nothing to do with fixing the wages, but he would go down to the office and see what could be done. He walked off in a great hurry toward the office, but as I didn't believe that it was necessary for him to consult with any one about the wages, I followed him to see where he would go. As I expected, he did not go near the office, but walked through the pattern shop and the machine shop, and then back into the foundry on a dog trot. When he came back to the brass shop he told me the manager was away and would not be back until morning. "Well," said I, "I'll just take a lay off until he comes back," and commenced to put on my coat again. When he saw that I was determined to get the wages or quit, he told me to go ahead and he would pay me three dollars a day on his own responsibility, hinting that he might be discharged for it.

I had been there less than a week when one of the molders told me that they expected trouble and asked me if I would stand by them. I inquired what their grievance was, and he explained that the "boss" had a number of favorites to whom he gave the cream of the work and paid them a higher price than he did to the others for the same work. In consequence, the favorites were making five and six dollars a day, while the men who did the best class of work could barely make three. Then the company were taking in considerable house and jobbing work and setting the prices so low that the men could barely make living wages at it. This work, they thought, should be made by the day, and they wanted the price list of all work placed on the crane, so that a man could tell what he was going to get for his work. I thought their demands were reasonable, and told him they might count on me standing by whatever the majority of the men decided on.

There was no union in Marshall at that time, but the men got together and talked the matter over. Finally a committee of three was appointed to meet the superintendent and lay our complaint before him and ask that the price list of all railroad work be

posted on the crane, and that all house and jobbing work be made by the day. By a rising vote the men decided to stand by the committee. If the demands were not granted, and the committee ordered it, every man should lay down his tools and walk out of the shop. None of the foreman's favorites were at this meeting, but they knew what was coming, and three of them quit before the strike took place.

The morning after the meeting none of the men were anxious to get started to work, and, after taking out their castings and cutting over their sand, they stood around in groups waiting to hear the result of the committee's conference with the superintendent. I went on with my work as usual, but told my helper not to light the fire in the furnace. The foreman knew what was up and was flying around to see what men he could depend on. Coming to the door of the brass shop he saw me working away, not noticing that the furnace had not been lighted, he supposed I was not among the disaffected men. We didn't have long to wait for a decision. Inside of fifteen minutes the committee came up the gang-way and ordered every molder to put on his coat, that the demands had been refused and the committee had been discharged. In a moment every man laid down his tools and picked up hi scoat. The only men left in the shop were the foreman, his assistant and two of his friends. As I walked out of the brass shop with my coat on the foreman looked surprised and asked me what I was kicking about and if I hadn't got what I asked for? I told him that I had nothing to complain of myself, but just the same I would stand by the other men until they got their rights.

As soon as we got out of the shop a meeting was appointed for that afternoon to hear the report of the committee; all we knew then was that they had been discharged, and our demands refused. At the meeting only one of the committee showed up, the other two having been discharged had concluded to leave town, and he was so drunk that it was impossible to get any report out of him. At the first meeting this man, who was about the oldest man in the shop, had been elected chairman, and he was one of the chief promoters of the strike. When he showed up in that condition, finding none of the rest would say a word against him, I protested so strongly against having a man like that to look after our interests that he got up and staggered out of the hall. We were now without a head, and did not know what answer had been made to our demands, or whether they had been presented in proper light. I saw that unless some definite plan of action was decided upon at once, and some one put at the head who could be depended upon, that the strike would be a failure and the men would soon return to work without having gained anything by it. I scored the committee for their indifference to our interests, and pointed out the fact that we must have some one who could be depended upon to manage the strike or it would end in defeat. Although I was only a stranger and among the youngest men there, they insisted on making me chairman and giving me full control to manage the strike. I at first refused, but finding none of the men willing to take the responsibility, I accepted it.

The meeting was then adjourned until the next morning, and I went to hunt up one of the committee to find out what had been said on both sides. I found him getting ready to leave town that night, and he told me the superintendent would hardly listen to what they had to say, but they had presented our demands fairly and he had informed them that the company would run their business to suit themselves, and didn't propose to allow any one to dictate to them how it should be run. He then told the committee they could get their time, as the company had no further use for them.

The next morning all the molders were at the meeting and I made a report of what I had learned and was suggesting that it might be as well to appoint another committee to wait on the manager, thinking they might be more inclined to listen to us now that we were out, when a boy came rushing in and reported that a notice had been posted on the gates to the effect that all employes of the company who failed to report for work on July first, the next day, could consider themselves discharged. After hearing this the men would not listen to the appointment of another committee, and it was decided by an almost unanimous vote to make no overtures to the company until they first made some advance to us. One of the men then suggested that as we were all discharged, or would be in the morning, it would be a good idea to get our money so

that we would have something for the Fourth of July. This idea was greeted with cheers, and we decided that we would meet at the hall the next morning and march in a body to the office and demand our money.

At ten o'clock the next morning every man was in the hall, there were nearly forty of us, and at a signal we all formed in twos and marched to the office of the company and demanded the money due us. The manager seemed to be greatly put out at our appearance and demand, but he gave the bookkeeper orders to make out our checks. After all had been given checks we again formed ranks and marched to the bank in an orderly manner and had our checks cashed, when we dispersed for the day.

We had been out for more than a week and both sides were standing "pat," no committee had been sent to wait on the firm and no communication had been received from them. A number of the molders had left town and got work in other places, and one of the men had telegraphed back to me that there were four jobs at Palestine. One morning an apprentice boy, who had come out with us, reported to me that he had met the superintendent, who asked him if he knew what the molders wanted, and intimated that they would confer with a committee. I at once called a meeting for that afternoon and laid the matter before them, suggesting that we should appoint a committee to wait on the firm. Some of the hot heads were averse to doing anything until the firm had sent a communication direct to us, but the majority were willing that a committee be appointed for the purpose of settling the strike if possible. After the summary discharge of our former committee, none of the men were anxious to serve in that capacity. The older men all refused to serve on one excuse or another, and I finally appointed two young men who, like myself, had nothing at stake, and I offered to serve as the third man on the committee.

The next morning only Andy Morton and myself showed up, but we concluded to go ourselves, as the other fellow would have been dumb as an oyster, anyway. I didn't even know the superintendent by sight, and having only been there a little over a week before the strike, I was not very well posted, but Morton insisted on my doing the talking. We met the superintendent in the shop and stated that we had come to represent the molders and try to effect a settlement. He didn't know that there was anything to settle, that they would hire the men they wanted if any of them wanted to work, but advised me to see Mr. Corn, the president of the company. We then went to the office and stated our business to the president. I guess they thought it was a sign we were weakening because a committee had been sent to see them, and that a big bluff would scare us back. On learning the object of our visit, Mr. Corn informed us that all of the men had been discharged, and if they wanted to come back each man would have to apply to the foreman in person for a job; if the company wanted him they would hire him, but every man who worked for the company hereafter would have to sign an agreement not to quit without giving the company ten days' notice of their intention. I told him if that was all he had to offer that there was no use of our wasting time talking about it and we started to leave the office. When he saw that his bluff didn't scare us, he called us back and asked what the men wanted and why they had gone on strike without warning the company of their intention? When we saw that he was disposed to talk reason, we explained how the men had been treated, that when we had appointed a committee to remonstrate against it they had been discharged, and our only recourse was to strike. He seemed a little surprised at our statement and questioned the superintendent about it. He denied any knowledge of our grievance and said the committee had only demanded good jobs for themselves and he had fired them. I then told him why we had been appointed to confer with him, and told him that unless the strike was settled in a very short time there would be no molders left in the town, and it would be impossible to get others, as no one would want to work in a struck shop. In confirmation of this I named the men who had already left and showed the telegram I had received from Palestine. This took all the bluff out of him and he was ready to talk reason and make terms with us. He conceded every point that we made, and inside of fifteen minutes he had agreed to give us everything we had asked for, but he still insisted that the men should sign an agreement not to quit without giving ten days' notice. We refused to countenance this at first, but after a consultation together

we drew up a counter agreement in which we bound the firm not to discharge any of the molders or make any alteration in the scale of prices without giving ten days' notice of the same in writing. We then presented this agreement to Mr. Corn and told him that we and all the other men would sign the agreement presented by him if he would sign that. This he agreed to do, after reading it over carefully.

Morton and I then returned to the hall, where the men were waiting for us, and reported the terms of the settlement. A few of them kicked about signing any agreement with the firm, but when we read the agreement we had drawn up and told them the firm would sign that, there were no further objections and the report was greeted with cheers. In a few minutes we again formed in line and marched to the office, where each one put his signature to the agreement binding them not to quit without giving ten days' notice to the firm, and we all witnessed the signature of the agreement on the part of the firm. Every man present knew that this was only a little "horse play" to let Mr. Corn down easy, and none of them expected the company to live up to their agreement with the men, but we had it worded in such a way that a failure of the company to give any individual molder ten days' notice of his discharge would release us from our obligation to notify them in turn of any intention to quit.

Now, the demands of the men in this case were reasonable and just, and this strike, like many others of a similar nature, could very easily have been averted by a little more diplomacy on the part of the men and by a respectful hearing, and a little more tolerance of the views of others on the part of the superintendent. Here is where labor organizations are of benefit both to their members and to the employers. Their laws are such that the men cannot precipitate a strike without giving them time to count the cost, or to find a means of avoiding it, and the knowledge of the strength behind them compels their employers to give a respectful hearing to their grievances. Both parties come together and settle their differences by reasoning, instead of standing aloof and trying to compel obedience to their demands by a show of brute force. I am satisfied that for every strike which is brought about by the labor unions, nine other labor differences, which would have caused strikes without such intervention, have been amicably settled without recourse to a strike.

When the strike ended I was given a floor on locomotive work, which was the best class of work in the shop, also about the worst paid of any. It kept me "humping," as the boys say, to average three dollars a day, while some of the men on the rough car work could make three and a half and four dollars and not half try. The climate of Marshall was a complete antidote for the malaria, and I was not there very long until I was as chipper as ever and had almost forgotten my chills and fever. However, I was dissatisfied with my job, and about a week after we started to work again I handed in my ten days' notice to the foreman. I worked away until my time was up and supposed that all I would have to do would be to get my time and present it to the office and get my money. It was the custom there if a man quit to pay him off with what they called a time check, payable in two or three months' time. When it was presented for payment at th bank they would discount it ten per cent. If you didn't choose to accept this you could wait until the regular payday. When I asked for my money the bookkeeper handed me one of these checks, due about the middle of the following October. I paid no attention to it except to see that the amount was correct, but when I presented it at the bank they counted out the money short ten per cent. I asked the teller what he meant and then he showed me the wording of the check. I pushed the money back over the counter and took up the check and returned to the office. I asked the bookkeeper if he would be kind enough to cash it for me, but he said there was not that amount of cash on hand. Then I told the president that I would refuse to accept the time check in payment of my wages, and would insist upon being paid in full without any discount. This Mr. Corn refused to do and a war of words ensued between us. I finally told him that unless he paid me in full that day I would enter suit against him for my wages and the time lost in collecting them, telling him that I was willing to spend all that was coming to me to defeat him. I started to leave the office several times with this avowed intention, but each time he called me back to talk the matter over, and he finally ended by giving me a check for

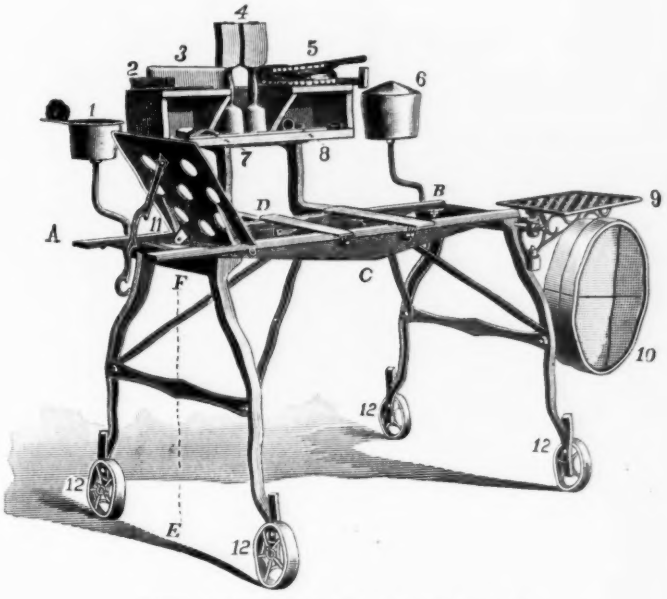
my money, rather, as he said, than see me make a fool of myself and loose all I had, but I thought it was rather than stand the expense of a law suit and be compelled to pay it in the end.

(To be Continued.)

Rowland's Movable Molders Stand.

The subject of the illustration is a movable molder's bench, the invention of J. T. Rowland, foundry superintendent of the J. I. Case Threshing Machine Co.'s Works, of Racine, Wis.

The devices indicated by the figures are: No. 1, is the sponge pot; 2, molder's soft brush; 3, hard brush; 4, bench rammers; 5, bellows; 6, parting sand pot; directly above 7 and 8, molder's tools box; 9, swing shelf; 10, riddle; tilting shelf; 12, adjustable slides or runners for wheels or castors.



ROWLAND'S MOVABLE MOLDERS BENCH.

The apparatus has been in daily use for a number of years at the J. I. Case Threshing Machine Co.'s Works, and has been found to pay for itself in a short time. It can be raised or lowered to suit either long or short molders, and it does away with the necessity of carrying moulds to the front of the floor and from the latter back after casting.

The bench is handled by the S. Obermayer Co., of Cincinnati, O., from whom full descriptive circulars may be had on application.

A Splendid Showing.

W. E. Wilkes, Secretary of the Brotherhood of Machinery Molders, reports that during the past term the order has paid the handsome sum of $10,058.71 in benefits to its members, or 63 per cent of its total income from dues and assessments. The office and organizing expenses have amounted to 26 per cent, leaving a surplus of 11 per cent in the treasury. As the greater proportion of the amount, it seems, was expended for sick and death benefits, it appears that these horrid organizations among employes are not always formed for the purpose of carrying out the evil designs of unscrupulous leaders.

John J. Molter, a well-knwn molder of Sandusky, O., who represented that city twice in the Ohio State Legislature, is now postmaster of that thriving city, and another "sand artist" of Racine, Wis., named Thos. T. Powers, is assistant postmaster in his town. Both are friends of The Foundry, and we desire to congratulate.

The Adams Company, of Dubuque, Ia., is so rushed with work that it was found im-

possible to shut down for Thanksgiving Day. Every one of their 47 molders were at their posts pounding sand the same as other days, and all felt it better to please employers and customers than remain away

The Use of Alloys in the Manufacture of Brass and Bronze Castings.

Of the numerous fluxes and metals which may be used for the improvement of the ordinary brass and bronze mixtures, and for making improved alloys, aluminum, silicon and manganese are undoubtedly the best, and it would pay every foundryman who makes brass, bronze, or other composition castings to investigate the subject. It will certainly enable him to improve the quality of his metal and castings at only a slight additional cost.

ALUMINUM.—The addition of ¼ per cent to 1 per cent of aluminum to any of the ordinary brass and bronze mixtures makes a marked improvement, and even the smaller amount mentioned makes the metal more fluid, and stiffens and toughens it. Care should be used not to add too much aluminum where tin is present in the alloy, or the result will be to make the metal brittle.

Of the aluminum bronzes—which are the alloys of aluminum and copper, in which the amount of copper is considerably in excess of that of aluminum—the most valuable are those containing from 5 to 11 per cent of aluminum, the two metals readily unite in all proportions, although a little difficulty will be experienced in obtaining a perfect alloy on the first melting, owing to the great difference in the specific gravity of the two metals. A much more perfect and homogeneous alloy is obtained after remelting. The strength and ductility of the aluminum bronzes runs from about 55,000 pounds per square inch tensile strength, and 40 per cent ductility for the bronze containing 5 per cent of aluminum, to about 80,000 pounds tensile strength with 10 per cent ductility for the bronze containing 11 per cent aluminum. These results have been obtained on test bars of one-half inch in diameter and one inch between shoulders; on larger test bars the results would not be so favorable. When a small amount of silicon is present in aluminum bronze the strength is considerably increased and the ductility somewhat diminished. Small castings can be made in green sand, but large and heavy work should be made in dry sand. The worst feature about the casting of aluminum bronze is the great shrinkage of the metal, which necessitates providing large "risers" or feeders for the heavy parts of a casting where the shrinkage is liable to occur. This, of course, adds considerably to the cost of the finished casting, but for special work where great strength and non-corrosive qualities are required, aluminum bronze is probably the best metal that can be used. The 10 per cent aluminum bronze (90 per cent copper, 10 per cent aluminum) is used quite extensively for bearings, gear wheels, chain belting, hoisting hooks, propeller wheels, elevator buckets working in salt water, pump rods, mining machinery, and in fact almost anywhere where a strong and tough metal is required.

SILICON.—As a flux or reducing agent to the oxide of copper that is produced when copper is in a molten condition, silicon is more active in clarifying, refining and strengthening copper, and its alloys of brass or bronze, than aluminum or phosphorous. It has been found upon experiment that the addition of only one-tenth of 1 per cent of silicon to melted copper before pouring will make the bath more fluid, removes the oxide of copper, makes the castings clean and solid and entirely free from blow-holes. By the use of silicon in this manner, difficult and complicated castings can be made from pure Lake or electrolytic copper. Where difficulty is experienced in obtaining solid castings from some of the brass and tin bronze mixtures, the addition of a very small amount of silicon will remedy the difficulty. In the two-part alloys of silicon and copper, 1 per

MR. F. J. DAVIS, who has written previously for THE FOUNDRY, was born in Rochester, N. Y., in 1858. He became connected with the Cowles Electric Smelting and Aluminum Co., at Lockport, N. Y., in 1887, and since 1889 has been Supt. at their works. As they have given the manufacture of alloys of various kinds much attention and have a world wide reputation, in that respect it is to be expected that he would naturally become one of the best posted men in the country on the subjects he has written about.

cent of silicon will go as far as 2 per cent of aluminum in hardening and stiffening copper, that is, an alloy of 95 per cent copper and 5 per cent silicon—known as silicon bronze—is as hard and stiff as an alloy of 90 per cent copper and 10 per cent aluminum, and while perhaps silicon bronze will not resist corrosion as well as aluminum bronze, it is a much better casting metal. It is also valuable for castings subjected to steam or water pressure, as it is a very dense and close-grained metal. The 5% silicon bronze has also been used very successfully for casting large vats in which a solution of caustic soda is used, the metal resisting the action of the caustic soda much better than any of several other metals tested. The most useful of the silicon bronzes are the 3 per cent (97 per cent copper, 3 per cent silicon) and the 5 per cent (95 per cent copper, 5 per cent silicon), although the hardness and strength of the alloy can be increased or decreased at will by increasing or decreasing the percentage of contained silicon. A 3 per cent silicon bronze has a tensile strength, in a casting, of about 55,000 pounds per square inch and from 50 to 60 per cent ductility; it is valuable where a tough and ductile metal is required.

The 5 per cent silicon bronze has a tensile strength of about 75,000 pounds per square inch and about 8 per cent ductility, making a very strong and tough metal. More than 5 or 5½ per cent of silicon in copper makes a brittle alloy. In using silicon, either as a flux or for making silicon bronze, the rich alloy of silicon and copper which is now on the market should be used. It should be free from iron and other metals if the best results are to be obtained.

MANGANESE BRONZE.—In much of the manganese bronze used by foundrymen in this country the manganese is added in the shape of ferro manganese, which necessarily introduces considerable iron into the bronze. There is no doubt that this iron is injurious, and that the bronze so made is much more readily corroded and not nearly so strong, tough and ductile as bronze that does not contain iron. A rich alloy of manganese and copper, containing no iron or other impurities, is now on the market, and by using this alloy a very pure manganese bronze of any desired grade can be produced. One of the best and cheapest bronzes can be made after the following formula:

Copper, 53.00 per cent.
Zinc, 42.00 per cent.
Manganese, 3.75 per cent.
Aluminum, 1.25 per cent.

This makes a very strong, tough metal, suitable for propeller wheels, gears and pinions, mining machinery, etc. As this bronze contains no iron, a much greater quantity of zinc can be added than when ferro manganese is used, without danger of making the metal brittle. In the above mixture it is quite important that the aluminum be present, as without it difficulty will be experienced in obtaining solid castings; in fact, it is necessary to add a small amount of aluminum to all the manganese bronzes, as without it they will not cast solid, but no trouble is experienced in obtaining solid castings when a small amount is used. Manganese bronze in the form of sheets is used quite extensively for mining screens, as the acid mine waters have no action on it. For rolling into sheets, a mixture containing more copper and manganese and less zinc is used.

A substitute for german silver can be made by the use of manganese, the different metals and their proportions being as follows:

Copper, 67.25 per cent.
Manganese, 18.50 per cent.
Zinc, 13.00 per cent.
Aluminum, 1.25 per cent.

The color of this metal is very good, resembling german silver closely. It is fully as strong as the best german silver and has superior casting qualities, which will be appreciated by foundrymen who have experienced some of the difficulties in casting german silver. Its non-corrodibility is many instances far greater than that of either german or nickel silver. A test of the electrical resistance of this metal shows its resistance to be nearly four times greater than that of german silver, and is therefore a matter of importance where a metal of very high electrical resistance is required.

F. J. Davis

The Lincoln & Jewett Iron Foundry, Alger street, South Boston, was partially destroyed by fire November 27.

The Degenerating Molder.

PART I.

There are many who have no hesitation in advancing the opinion, that the workmen of to-day do not compare favorably with those of the past. There is a class of people to whom nothing appears as good as "when I was a boy." Among its adherents are also found a few foundrymen, who, after years of hard toiling, presumably spent in educating those who are to succeed them, now arrive at the disagreeable conclusion that they are going to leave a set of inferior molders behind them, that can in no way compare with themselves.

It is openly asserted that the present molders lack the high degree of skill possessed by those of the past. If true this can be defended in but two ways, either must the present molder be lacking intellectually, being unable to assimilate and retain what has been handed down to him from the past, or profit by observations from the present, or else the gentlemen who say that he is going backwards have failed to give him the proper instruction and attention. If any retrograding movement has actually taken place, I think we must look to the latter for an explanation.

"That is a good shop for a boy to learn a trade in," someone will say about a certain foundry. "Yes, it beats the rest of them in this town," is the rejoinder. Now, why is one shop so much better than another? The wages paid may be the same, the management of both may be identical, the foreman kind and gentle, yet one shop is called superior. Why? Because if offers opportunities for observation in excess of the other.

The knowledge which we have individually, and that of the human race in general, is the result of observation. The most enlightened people are those who are offered the greatest number of chances for observation. There are but few things that we say or do, that are original with us, being for the greatest part, merely the result of our observations. Individually we do not all have the same power to observe, hence our knowledge depends upon the power we have for observation, or rather the faculty with which we retain such, and the number of chances that are offered us for observation. In the molder's trade this varies greatly, and the result is accordingly and in direct proportion seen in the skill of the workmen produced at different establishments.

The men comprising the molders of to-day have certainly shared with the rest of our population in intellectual advancement, and must, therefore, possess the power to observe to a greater extent than their predecessors. If deficient in knowledge, must we not look for the cause in the fact that the number of chances for observation, pertaining to the trade, has been greatly limited to a very large number of molders?

In the past, when nearly every shop could be designated as a jobbing shop, did not a large percentage of the molders have greater chances for observation than now exists? Is the percentage of skilled molders to-day not in equal proportion to the percentage of shops that are capable of producing the same?

With the introduction of what is known as competition, foundrymen were confronted with the question of reducing the cost of production, and finding that a large number of a certain casting could be made with less skilled labor at less cost per piece than a smaller number, led to a large number of foundries confining themselves to certain lines of foundry work. A pipe foundry will thus make pipes, a wheel foundry wheels, etc., cheaper than the same articles could be made in a general foundry. But the chance to observe are greatly reduced to the molders engaged in these specialty lines, not only do they remain in blissful ignorance of the trade outside their own sphere, but are sometimes even left without any knowledge as to the principles underlying that branch in which they may be engaged. They become machines, not mechanics. Yet competition demands that such men must be employed to enable first one manufacturer and then another to obtain a small advantage. When these workmen discover that they are actually not engaged in a trade, but as the severest kind of laborers, requiring for the largest part nothing but muscular energy, who will blame them for trying to get into better shops in an effort of self-improvement? The very fact that molders are always alert to obtain situations in shops where an increased number of opportunities for observation are offered, should protect them from being alluded to as having no ambition towards occupying a higher plane of usefulness.

This is a business world. Everything is measured by the standard known as the "Almighty Dollar." If a foundry makes a specialty of grate bars, all that it requires of its molders is to produce this article; it asks for nothing else, nor will it pay anything extra to a molder for knowing how to make other jobs, because it does not make use of the information he possesses in regard to anything else. Unlike the professions, where specialists command the best salaries, in the trades they receive the lowest.

It has been suggested that the term of apprenticeship be extended in order to produce better molders. While there are a few shops where a molder could with benefit serve time indefinitely, would better results not be obtained at present if a little more information was advanced to the boy during the time he is now serving. I never saw a boy whose mind was weakened by being overloaded with information, the only thing I have noticed being tired about boys has been their muscles, after pouring off a big day's work, often equaling a man's, and receiving about 25 per cent. of the molder's pay; this in itself would produce a tired feeling.

No molder ever knew it all, his apprenticeship only expires with death, and it does not matter to anyone who is at heart trying to become as good a molder as he can, whether his time is out or not, he will be just as alert to take the benefit of anything that will fall under his observation, and he will be perfecting himself to the same extent.. Some foundrymen will say that when a molder has served his apprenticeship, he should not need instruction in order to execute a job given him in a satisfactory manner. What is a foreman in a shop for, anyhow? Is he not there that it may have the benefit of his experience and observations, and is he not chosen because he has these qualities to a high degree?

It is also said that there is no encouragement in teaching a boy under present conditions, when the chances are that he would only leave those who had initiated him into the mysteries of the trade. If a boy is worth more to some other shop, than to the one in which he served his time, I fail to see by what right he should be prohibited from taking advantage of this. Why should he not be allowed to better his conditions? For it does not seem reasonable to suppose that a boy will deliberately injure himself.

A foundryman is very apt to underestimate the worth of mechanics who have been evolved within his own establishment; he is liable to entertain the idea that they are inferior, because they are home-made, never realizing how good they are till they are gone. I have a recollection of several foundries refusing to pay their boys journeymen's wages after completing their apprenticeship, not because they were not fully worth it, but as the management expressed itself, "They could work no place else, anyhow." Such a testimonial to his efficiency, after serving his time faithfully, would hardly strengthen the confidence of any boy. When such shops find the true merit of their employes appreciated by others, it must, of course, be galling to their narrow-minded anatomies.

Now, some of our foundries do not need as skilled molders as others; in fact, in some but very little experience is considered necessary, from a manufacturer's point of view, hence they do not endow their apprentices with information, or furnish them with practical illustrations of objects, the nature of which is outside their domain. Molders should not be asked to perfect themselves, unless their knowledge and skill can be used in a commercial way, that is to say, find a market and receive its just reward.

Will foundrymen pay for increased skill? It is seldom we hear of them working very hard to increase anybody's wages voluntarily; in fact, a large number pay an equal wage all around. Asking one foreman for an advance he informed me that this could not be done, as the firm, having had trouble among its men on account of an unequal wage schedule, had determined the only way to avoid this was by paying everybody alike. Now, what incentive is there in such shops for a molder to ever strive to be more perfect in the quality or quantity of his production, when there is no reward for superior workmanship? As one molder said, it is all very nice to have people say after you are dead, that you could do more and better work than others, but if all you receive in excess of others is this compliment, where are you benefited? For my part, I would prefer to feel the effects of the exertions I make in a substantial way personally, for as a monument to my memory they are of no value.

If there are only a small number of the foundries in the country that are qualified

and in a position to produce good mechanics, how are we going to expect more than a proportionate number of reliable molders? Must not the others be inferior? Every industry develops the workmen it needs, and it also makes them as skillful as required, but it only retains them by making it to their interest to remain with it. Generally no one works because he loves to; it is a question of dollars and cents, and if the superior shops we have would pay their molders wages in proportion to what they do and the skill they possess, they would have no trouble in retaining the boys who grow up to be men and molders under their guidance, and who, if justly rewarded, would not seek situations in inferior places? But if a molder can make more money making grate bars than he can making cylinders, why should he not do that which pays the best? Do not foundrymen themselves seek the work which is to them the most profitable?

It is not always a matter of choice when a boy makes his appearance in the foundry. It will often be found that an older person precedes him and arranges for his reception, even without his sanction, because he has got to do something to make a living. This guardian may believe that a foundry is a foundry, just like an egg is an egg. Many of the latter are bad; just so with the former, to the detriment of the boy's success in life. The ignorance of some people, on whom falls the responsibility of starting young men in a career in regard to the trade, will preclude them from asking pertinent questions, and the worthy who signs the company's name to the contract binding the boy to tend to his business and be faithful to the firm's interest, will never say anything like this: "We take this young man out to a sand heap, and show him how to handle a shovel and a rammer on the kind of work we have—we have not got a great variety of patterns—but if we get too much stock of one kind we will be compelled to shift him onto another, when his experience will correspondingly increase. About all that he will know at the end of four years we could consistently teach him in six months, but the reason we keep him so long is to enable us to keep a fair bank account. After serving all this time he will be a molder only in name; he will be able to work on no other class of work than what we have here, and his pay will average but little above that of a common laborer, while the work required of him will be more severe."

It would be honesty to say so in many cases, but it would not be business. It has been said that foundrymen should conscientiously teach a boy the trade, but it is not to be supposed for a moment that a foundry making light grey iron castings will take a contract for marine engines in order to make their boys good molders, nor will a shop making such go into the manufacture of running machinery or take a contract for statues for the benefit of their apprentices. As stated before, this is not a world of human kindness, but of business, and the foundrymen will do nothing that is not consistent with business; in fact, they will do nothing of a benevolent character without they feel sure of receiving some profitable return for their investment. As everything pertaining to the molder's art is not practised in any one institution, it follows that but a part of the trade can be acquired in one foundry under any length of apprenticeship, and that even on the same class of work the practice will differ with localities.

Henry Hansen.

Water and Iron do not Mix.

The explosive power of water when suddenly converted into steam may not be thoroughly understood or even fully comprehended by some mechanics, and an explosion that wrecked a foundry was caused by a lack of just such knowledge on the part of the foundrymen. Pouring off is always done at the end of the day, and sometimes it is late at night before the bottom is dropped and the furnace man at liberty to go home. Under such conditions it is not strange that a man would do all that he could to hurry up things, that he might get away early.

It is the custom in most foundries to throw several pails of water on the pile of slag and cinder that comes down, red hot, upon the sand which has been placed under the cupola to receive that which falls when the bottom is dropped. A shallow cavity is hollowed out of the of the sand to receive the slag, and several pails of water, or a steam from the hose, deadens the intense heat radiated from

the pile of glowing matter. It is supposed that the cupola man, in order to get away sooner, hit upon the expedient of getting the water ready beforehand, so he could have less to do after the bottom came down. Accordingly, the hole scooped in the sand underneath the cupola was half filled with water, and at the given signal the prop was pulled away and the bottom came down. Then the explosion occurred, wrecking the building, killing and wounding several workmen and setting the wreck on fire. It was caused by the water becoming suddenly expanded into a gas, which occupied many times the space filled by water.

We can throw a pail of water into a cupola charged with molten iron and no explosion will occur which can amount to much. But confine that water in a pipe and plunge the pipe into melted iron and there will be the liveliest kind of an explosion as soon as the heat gets well at the enclosed water. It is this thing which sometimes causes the disastrous explosions in cupolas, when pistons and other apparently harmless pieces of iron explode with terrible force and damage.—Tradesman.

Stove Men Meet.

A meeting of stove manufacturers was held at the Auditorium, Chicago, at which the following well known firms were represented: Cribben, Sexton & Co. and Rathbone, Sard & Co., of Chicago. The Michigan Stove Co., the Art Stove, the Detroit Stove and the Peninsular Stove Co.'s, of Detroit, Mich., the Brand Stove Co., of Milwaukee, the Rock Island Stove Co., of Rock Island, Ill., and the Comstock Castle Stove Co., of Quincy, Ill. A committee on organization was selected, who will report at the next meeting, to be held in Cincinnati the first or second week in December. The question of freight rates and prices will be the principal subjects under discussion.

The Algona Foundry, Algona, Ia., will turn out 200 feed mills this winter.

The foundry of the Wharton Switch Works, Twenty-fourth and Washington ave., Philadelphia, wrote to inform us that the report of the partial destruction of their plant and patterns by fire was in error, as the fire was of no consequence, being confined to a few flasks in the yard.

Books, Exchanges, Etc.

The catalogue of the Phoenix Iron Works Co., of Cleveland, O., has been received. Among other things we notice it is profusely illustrated, the front cover showing a Phoenix Iron Works traveling crane attached to the earth, the colored effect of the background being in our opinion very fine. There is throughout the book a very great variety of styles of cranes, with complimentary letters from the users. The following from the announcement is explanatory: "It has been our aim to give in this book only such styles as are in common use in this country, but we are prepared to furnish designs and estimates on cranes adapted to all services. Our past long exeprience in crane building enables us to design and build cranes best suited to the work they are to do, and we shall be pleased to give information to intending purchasers to assist them in determining the style best adapted to their requirements." For the convenience of the trade their eastern agent's office will be at Fulton and Cliff streets, New York, and their New England office with the John Wales Co., 139-141 High street, Boston, Mass.

Circular No. 1 of the Foundry Outfitting Co., Detroit, Mich., has come to hand. It contains principally an elevation and cross sectional plan of their new rapid melting cupola furnace. There is also order blank, which is somewhat new and original, enabling intending purchasers to make their wants known regarding dimensions, kind of fuel to use and the capacity in tons per hour and heat. It is nicely printed on coated book paper and is sent on request.

There are some who think that this republic, which has weathered so nobly the storms of war and peace, will go down on the shoals of hard times; that we, as a nation, cannot live through the headache induced by the financial sprees of ourselves and others. We are told that our civilization and our government are fit only for the days of cotton and corn prosperity. We are told that our whole industrial system, and the civilization of which it forms a part, must be torn up by the roots and cast away. We are told that the days of self-control and self-sufficiency are over, and that the people of this nation are really typified by the lawless bands rushing blindly hither and thither, clamoring for laws by which those men may be made rich

whom all previous laws of God and man have ordained to be poor.

In these times it is well for us to remember that we come of hard stock. The Anglo-Saxon race, with its strength and virtues, was born of hard times. it is not easily kept down; the victims of oppression must be of some other stock. We who live in America and who constitute the heart of this republic are the sons and daughters of "him that overcometh." Ours is a lineage untainted by luxury, uncoddled by charity, uncorroded by vice, uncrushed by oppression. If it were not so we could not be here to-day. From the Need of Educated Men, by David Starr Jordan, in the Popular Science Monthly for December.

The December Review of Reviews is an unusually strong "book number." Its 17-page resume of the American and English literature of the month is creditable to the literary sense and enterprise of the management.

The Christmas number of St. Nicholas contains many features appropriate to the holiday season. Pictures by eminent artists bring out the religious and social significance of the festival, and stories and poems also show the Christmas spirit. The frontispiece is a drawing of the Madonna and Christ child by Ella Condie Lamb, followed by a poem, "December," by Harriet F. Blodgett, engrossed and illustrated by Leon Guipon. "Santa Claus' Pathway," by Julia W. Miner, tells how the patron saint of childhood spilled some toys from his sleigh, where they were found by a poor boy and girl; at least that was the only explanation given to the recipients. "The Fool's Christmas," by Florence May Alt, is a poem showing the adventures of a king who changed places with his fool for a day. It is illustrated by George Wharton Edwards. Albert Stearns begins, in a very lively way, a new serial, "Chris and the Wonderful Lamp." A wide-awake boy becomes possessed of the veritable lamp that helped Aladdin to his fortunes. The genie is just as powerful as of yore, but a little more independent and thoroughly up to date. "President for One Hour," by Fred P. Fox, is the story of a quick-witted and brave boy, who prevents a disastrous railway accident. A home story that is much in the style of the lamented Louisa M. Alcott is "The Martyrdom of a Poet," by Marion Hill. "Fighting a Fire" is an exciting description of the almost daily perils of a fireman's life in New York City. It is written and illustrated by Mr. C. T. Hill, who has made a careful study of the subject. Mr. Elbridge S. Brooks' historical romance, "A Boy of the First Empire," gives a glimpse of the festivities that attended the wedding of Napoleon and Marie Louise. The hero of Howard Pyle's serial is in the lair of the pirates, whence a mysterious expedition is started. The poems of the number include "How the Dominie Went to Sea," by Virginia Woodward Cloud; a "Snow Song," by Frank Dempster Sherman, and "Black Douglas," a medieval ballad by Anna Robeson Brown.

NOTICE.

Advertisements inserted under this head for 25 Cents a line each insertion.

FOR SALE — Small complete foundry, in growing manufacturing city of 10,000. Just the place for small manufacturer of limited means, cheap water power. Cash $1,500, balance to suit purchaser at 6 per cent. interest. Title clear, good buildings. Address, Geo. A. Woodruff, Kankakee, Ill.

WANTED — Position as Superintendent of Machine Shop and Foundry. Nineteen years experience estimating, manufacturing and repairing mill, mining and general machinery. Thoroughly practical foundryman on light and heavy work, rolling mill rolls, car wheels and car work by day or piece. A 1 references. Address, John B. McLaren, Muskegon, Mich.

WANTED—Correspondence with parties desiring an A 1 up to date foundryman, experienced on light and heavy castings in iron and brass. Address, V. W., care of Foundry.

ANYONE IN NEED of the services of an experienced foundryman with an A1 record of 25 years on malleable, stove plate and light machinery, can secure the same by addressing F. O. G., 1095 Payne avenue, Cleveland, O.

READERS of *The Foundry* who are in need of or desire figures on any class of supplies or machinery not advertised in our columns will be placed in communication with dealers upon request.

A LOAM MOLDER, experienced in heavy engine, furnace pipe, and marine work, desires situation; American and European references. Address, A. I., care "The Foundry."

WANTED—Experienced foundryman having some capital to invest, to take charge of modern establishment, investment satisfactorily secured. Address A. B., care "The Foundry."

FOR SALE—One D-sized Colliau cuopla in good condition. Address Dawes & Myler, New Brighton, Pa.

FOR SALE—A complete stove foundry, with patterns for wood, coal, cook and heating stoves, flasks, tools, etc., for rent, lease or sale. New brick building, new boiler, engine blower, cupola and all other machinery; molding floor for 22 molders; mounting room 100 feet, well lighted, south front. Everything in splendid condition and ready to be started at once. Repair works will almost pay the rental. A rare chance for a practical foundryman with limited means. Good location for a general foundry; 100 tons of school furniture castings used by old established company in town, are made in another state and have to be shipped to our city. About six carloads sashweights used annually by our jobbers. Address H. S., this office.